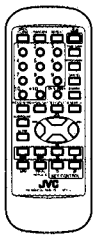
XL-SV22BK
XL-SV33GD

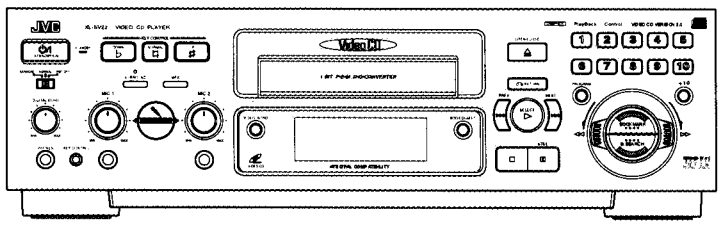
JVC

SERVICE MANUAL

VIDEO CD PLAYER

XL-SV22BK
XL-SV33GD





PlayBack Control

Video CD

COMPACT disc DIGITAL VIDEO

COMPACT disc DIGITAL AUDIO GRAPHICS

COMPACT disc DIGITAL AUDIO

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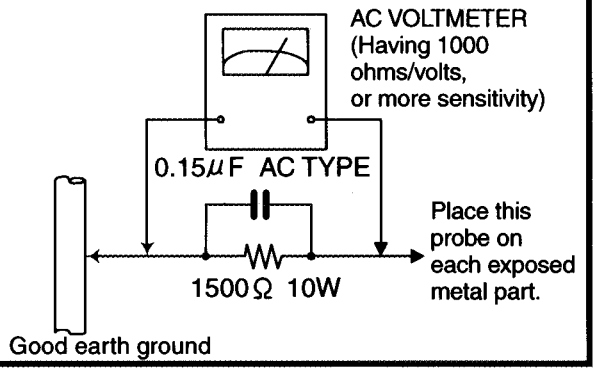
No.20657
DEC. 1997

Safety Precautions

1. This design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.
5. Leakage currnet check (Electrical shock hazard testing)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isolation transformer during this check.
   - Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet , particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.)
   - Alternate check method
     Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground.
     Measure the AC voltage across the resistor with the AC voltmeter.
     Move the resistor connection to eachexposed metal part, particularly any exposed metal part having a return path to the chassis, and meausre the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. voltage measured Any must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).



Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

⚠ ***CAUTION*** **Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of preforming repair of this system.**

Important for Laser Products

1.CLASS 1 LASER PRODUCT

2.DANGER : Invisible laser radiation when open and inter lock failed or defeated. Avoid direct exposure to beam.

3.CAUTION : There are no serviceable parts inside the Laser Unit. Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.

4.CAUTION : The compact disc player uses invisible laserradiation and is equipped with safety switches whichprevent emission of radiation when the drawer is open and the safety interlocks have failed or are de feated. It is dangerous to defeat the safety switches.

5.CAUTION : If safety switches malfunction, the laser is able to function.

6.CAUTION : Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

VARNING : Osynlig laserstrålning är denna del är öppnad och spårren är urkopplad. Betrakta ej strålen.

VARO : Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle.Älä katso säteeseen.

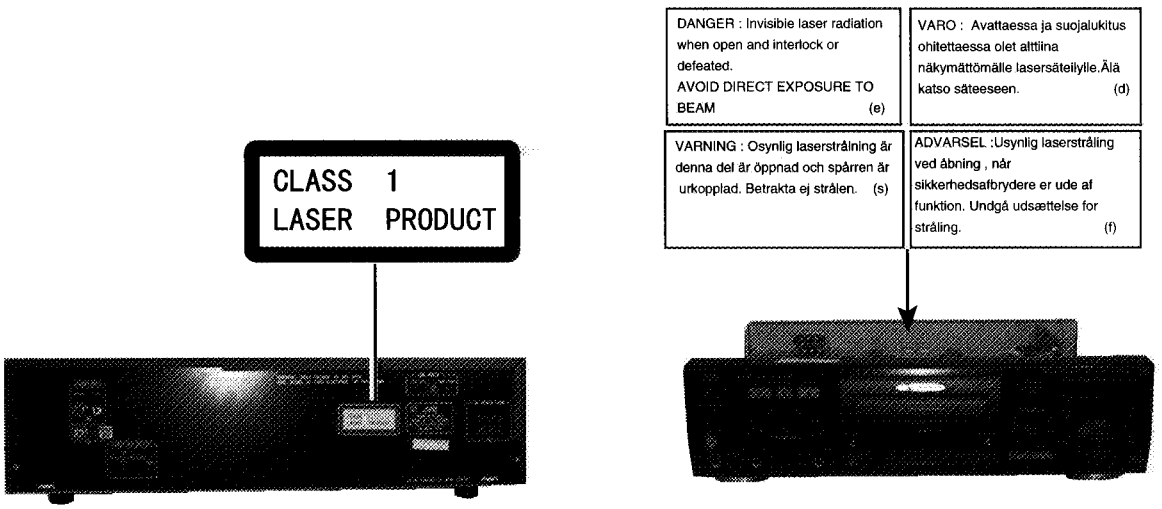
ADVARSEL : Usynlig laserstråling ved åbning , når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

ADVARSEL : Usynlig laserstråling ved åpning,når sikkerhetsbryteren er avslott. unngå utsettelse for stråling.

REPRODUCTION AND POSITION OF LABELS

WARNING LABEL

(Except for the U.S.A.and Canada and UP)


CLASS 1
LASER PRODUCT
DANGER : Invisible laser radiation when open and interlock or defeated.
AVOID DIRECT EXPOSURE TO BEAM (e)
VARO : Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle.Älä katso säteeseen. (d)
VARNING : Osynlig laserstrålning är denna del är öppnad och spårren är urkopplad. Betrakta ej strålen. (s)
ADVARSEL :Usynlig laserstråling ved åbning , når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling. (f)

We would like to thank you for purchasing one of our JVC products. Before connecting this unit to the wall outlet, read the instructions carefully to ensure that you obtain the best possible performance. If you have any questions, consult your JVC dealer.

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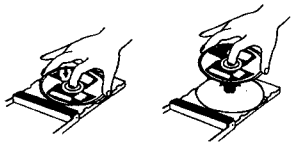
GENERAL INFORMATION

Care and handling of compact discs

How to handle CDs
When handling a compact disc, do not touch the surface of the disc (reflective silver side — the side without the label).
Since compact discs are made of plastic, they are easily damaged. If a disc gets dirty, dusty, scratched or warped, the sound will not be picked up correctly and, in addition, such a disc may cause the CD player to malfunction.



Care of the label side
Do not damage the label side, stick paper or use any adhesive on its surface.

Storage
Make sure that discs are kept in their cases. If discs are piled one on top of another without their protective cases, they can be damaged. Do not put discs in a location where they may be exposed to direct sunlight, or in a place where the humidity or temperature is high. Avoid leaving discs in your car!

Maintenance of discs
If there are fingerprints or dirt adhering to a disc, wipe it with a soft dry cloth, moving from the center outwards.
If a disc is difficult to clean, wipe with a cloth moistened with water. Never use record cleaners, petrol, alcohol or any anti-static agents.

CAUTION
Sometimes during play noise or images may be garbled. This is sometimes due to the disc. (It may not be up to industry standards.) These symptom are caused by the discs, not by the malfunction of the Player.

Which compact discs can be used?
Many types of compact discs are sold for a variety of uses. The Video CD Player can play the following compact discs:

- **Video CD**
  for audio and video (moving picture) reproduction, including multiplex sound.

- **Video CD with Playback Control function**
  featuring menu-type operation and super-fine still pictures for audio and video (moving picture) reproduction, including multiplex sound.

- **CD Graphics (CD-G)**
  for audio and video (still picture) reproduction, including multiplex sound.

- **Digital Audio CD**
  including single discs for audio reproduction.

CDs you can't play back
Do not play back CD-ROMs, DVDs, or CD-Is on this equipment. Doing so may generate a noise which can damage your speakers.

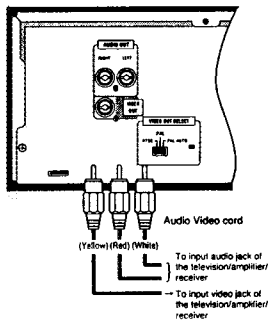
Using the remote control
The remote control is ready to use when its batteries are installed properly.
To use it, point its infrared light-emitting window toward the display window of the player and press a button. The operating range of the remote control is up to about seven meters in front of the player and within about 30 degrees to each side — with nothing between the remote control and the player interrupting the beam path.
If pressing a button on the remote control does not produce any response, check to make sure it is pointed correctly and try again. If it still does not function, check the batteries.

Basic connections

The Video CD Player must be connected directly to a television set or an amplifier that is connected to a television or monitor. The television set or the amplifier must have audio input jacks for right and left channels and a video input jack.
Select a level, dry location free of dust and vibration, having a temperature maintained between 5 and 35°C (41 and 95°F).

Connecting the player to a TV or amplifier using the Audio Video cord

First connect the Audio Video cord — before connecting the AC power cord.
Firmly insert the yellow pin plug of the Audio Video cord in the yellow VIDEO OUT jack on the rear panel of the player; the red pin plug in the red AUDIO OUT (RIGHT) jack; and the white pin plug in the white AUDIO OUT (LEFT) jack. (The RIGHT and LEFT output jacks are for the right and left audio channels.)
Then make sure that the television, amplifier or receiver is turned off, disconnect the AC power cord, and firmly insert the pin plugs at the other end of the Audio Video cord into the matching video and audio INPUT jacks.


Audio Video cord
(Yellow) (Red) (White)
To input audio jack of the television/amplifier/ receiver
To input video jack of the television/amplifier/ receiver

Video out select

Set the VIDEO OUT SELECT switch on the rear panel to NTSC, PAL, or PAL AUTO mode according to your television system.

NTSC ..... for NTSC exclusive TV
PAL ..... for PAL exclusive TV
PAL AUTO ..... for Multisystem TV
PAL AUTO detects the formula of the disc (NTSC/ PAL) automatically and plays the image on the screen correctly.

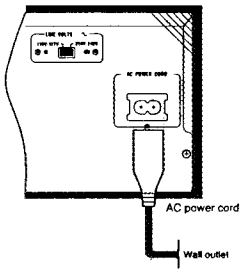
Notes

- When you play an NTSC disc in PAL AUTO mode on a PAL exclusive TV, the image may be distorted.
  If the signal doesn't synchronize, change the mode to "PAL".
- Select the mode before you play the disc. If you change the mode during play, images may get distorted. In this situation stop the player and reset the mode.
- When you play an NTSC disc in PAL AUTO mode on a Multi system TV, the image may blink for a moment. This symptom is caused by the Player detecting the formula of the disc, not by a malfunction of the Player.

Connecting the power cord

IMPORTANT
Check the setting of the LINE VOLTS switch on the rear panel of the player. Change the setting if the switch is not set for the main voltage supplied to your home.
With the LINE VOLTAGE switch correctly set and the audio-video connectors connected, insert the smaller plug of the power cord firmly into the AC POWER CORD socket on the rear panel of the player.

When the power cord is connected, the STANDBY indicator on the left-hand side of the player's front panel comes on. [See "Overview of Controls" for a description of the controls on the player.]



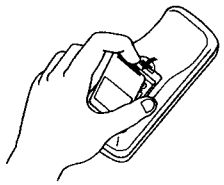
Line voltage alteration
What is your power main voltage? Is it between 115 and 127V, or 220 and 240V? If the LINE VOLTS switch on the rear panel of the player is not set to your power main voltage, disconnect the power cord if it is already connected, and change the switch setting accordingly.

Installing batteries

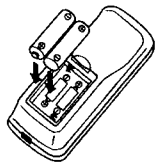
Putting batteries in the remote control

The battery compartment is located on the back of the remote control.

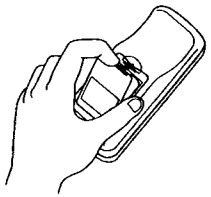
1. **Insert a finger in the recess under the battery compartment cover, and pull off the cover.**



2. **Place the two accessory R6P (SUM-3)/AA (15F) batteries in the remote control according to the polarity markings ("+" and "–") inside the compartment and on the batteries.**



3. **Insert the two tabs of the cover in their respective slots, and snap the cover in place.**



The batteries last about one year with normal use. If function of the remote control become erratic, replace the batteries.

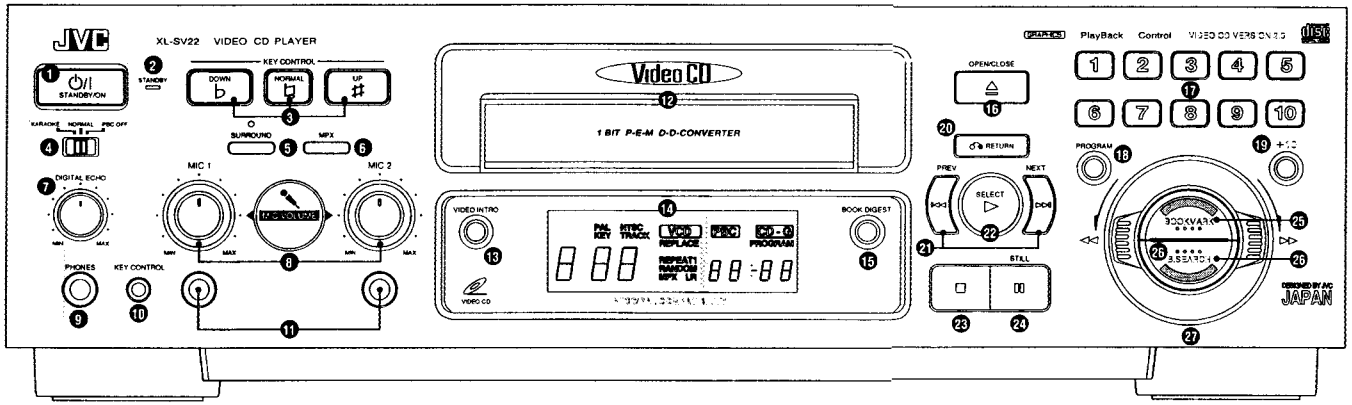
Precautions for the safe use of batteries
Observe the following precautions for the safe use of batteries. Their life will be shortened, they may burst or their contents may leak if they are used improperly.

- Remove batteries from the remote control if it is not going to be used for a long period of time.
- Remove dead batteries and dispose of them properly.
- Never leave dead batteries lying around, take them apart, mix them with other refuse, or throw them into an incinerator.
- Never touch liquid that has leaked out of a battery.
- Do not mix new and old batteries, or batteries of different types, when replacing them.

OVERVIEW OF CONTROLS

The following is an explanation of the the basic function of controls on the front panel of the Player and the remote control. The function of some controls may be restricted in actual use depending on the on-going operations. The remote control has nine (9) unique function buttons in addition to those on the player.

The controls with identical names on the Player and on the remote control have the same function and are used in the same manner.



Left front panel of the Player

(Controls marked (R) have equivalents on the remote control.)

❶ **⏻/I STANDBY/ON button (R)**
Switches between power ON and STANDBY.

❷ **STANDBY indicator (Red)**
Lights when the power cord is connected and the power is turned off. The STANDBY indicator is not lit when the player is turned on.

❸ **KEY CONTROL buttons**
Transposes the music key.
DOWN ♭ button: used to flatten by a half tone. (R)
NORMAL ♮ button: returns to original key tone.
UP # button: used to sharpen by a half tone. (R)

❹ **MODE switch**
Switches the KARAOKE/NORMAL/PBC OFF mode.
KARAOKE mode: one track playing mode.
NORMAL mode: continuous plural tracks playing mode. Required also for the Playback Control (PBC) function.
PBC OFF mode: inhibits the Playback Control (PBC) function of the video CD.

❺ **SURROUND button (R)**
Changes the sound mode.

❻ **MPX button (R)**
Activates the multiplex function, which switches to NORMAL (stereo), L-ch monaural and R-ch monaural.

❼ **DIGITAL ECHO knob**
Adjusts the degree of the echo effect for the microphone.

❽ **MIC knobs**
Adjusts volume of the microphone corresponding to MIC number.

❾ **PHONES jack**
Used for connecting stereo headphones. The volume is set to a predetermined level and is not adjustable.

❿ **KEY CONTROL jack**
Used for connecting a microphone with key control function.

⓫ **MIC jacks**
Used for connecting microphones. The jacks correspond to MIC volume knobs located above.

Center front panel of the Player

⓬ **DISC tray**
Used to load a disc. To insert/remove a disc, press the ≜ OPEN/CLOSE button located at the right of the tray.

⓭ **VIDEO INTRO button (R)**
Applies to video CDs only. The introductory five (5) seconds of tracks on a video CD are displayed on the television screen in order to present the contents of the video CD.

⓮ **Display window**
Shows information about the status of operation.

⓯ **BOOK DIGEST button (R)**
Displays video segments you marked with the Bookmark function. (See page 12.)

Right front panel of the Player

⓰ **≜ OPEN/CLOSE button (R)**
Used to open and close disc tray.

⓱ **Number keys (1 to 10) (R)**
Used to specify a track number for playing, changing, or programming. To operate numbers above ten (10), press the +10 button once. The number keys (1 to 10) are then assigned the numbers 11 to 20 instead of 1 to 10. The maximum key number assignment is 99. In PBC function operation, the number keys are additionally utilized for the selection of menu items. See page 15 "Operation of Playback Control function".

⓲ **PROGRAM button (R)**
Any desired sequence of tracks can be programmed with the number keys and the +10 button. The program button cannot be used while the Playback Control function is activated.

⓳ **+10 button (R)**
Used to shift the numbers assigned to the number keys to 11 or higher (maximum 99).

⓴ **↶ RETURN button (R)**
Utilized for operation with the PBC function. This button is used to return to a menu screen during play.

㉑ **I◄◄ / ►►I PREV / NEXT buttons (R)**
During operation with the Playback Control function
Invokes previous or next screen.
During operation without the Playback Control function
Skips forward or backward quickly from current track being played.

㉒ **► SELECT (PLAY) button (R)**
Starts to play the disc with/without the Playback Control function.

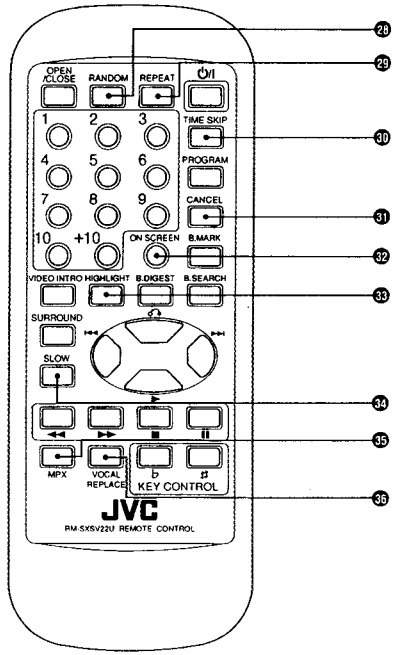
㉓ **■ (STOP) button (R)**
Stops play.

㉔ **II STILL (PAUSE) button (R)**
Temporarily suspends playing. Video motion freezes and audio reproduction stops. Pressing the button repeatedly advances the picture frame-by-frame. (Video CD only)

㉕ **BOOKMARK button (R)**
Places a "bookmark" at video segments you want to find later for almost instant replay. (See page 12.)

㉖ **B. SEARCH button (R)**
Retrieves video segments which you marked with a bookmark. (See page 12.)

㉗ **Jog/Shuttle dial**
Used for fast-forward, fast rewind, and frame-by-frame playback.



Remote control unit

㉘ **RANDOM button**
Changes the disc track program to a random sequence.

㉙ **REPEAT button**
Repeats a track or a inserted disc.

㉚ **TIME SKIP button**
Skips specified minutes ahead on a track.

㉛ **CANCEL button**
Cancels the latest track you have programmed. The latest programmed track is canceled whenever you press this button. Also used to cancel a bookmark.

㉜ **ON SCREEN button**
Controls whether or not control and operation status are displayed on the television screen or monitor.

㉝ **HIGHLIGHT button**
Applies to a video CD to see highlights of a track. Displays the first five (5) seconds of each of nine (9) equal-time segments of the track.

㉞ **SLOW button**
Starts slow-motion playback.

㉟ **MPX button**
Activates the multiplex function. (See page 10)

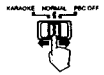
㊱ **VOCAL REPLACE button**
Activates the vocal replace function, inserting your voice in place of the disc vocals.

BASIC OPERATIONS

Now you can play a variety of video CDs!!

Overview of the three modes

This Player has three (3) modes: KARAOKE, NORMAL, and PBC OFF mode. These are selected by the MODE switch. This permits various ways of playing a video CD.

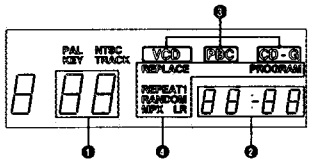


KARAOKE mode: One track playing mode. Whenever one track has completed play, the Player stops.
NORMAL mode: Continuous plural track playing mode. The Player plays tracks continuously in the order they appear on the disc.
PBC OFF mode: This mode is identical to the NORMAL mode, except that the PBC function is inhibited.

To set the mode, move the MODE switch on the left side of the front panel.

Display window

The display window indicates many aspects of control and operation status.

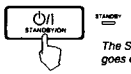


❶ Shows mainly the total number of tracks and the track number being played.
❷ Shows mainly the cumulative time (minutes and seconds) of the track. Afterward, total time of the disc is displayed.
❸ The combination of VCD, PBC, and CD-G Indicators shows the type of disc being played.
❹ Each indicator in this area lights when the corresponding function is activated.

Preparation for playing

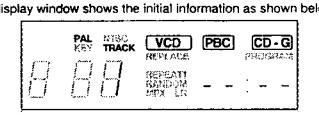
Turn on the television set, amplifier or receiver to which the Player is connected. Then select the proper channel and mode to operate the Player, and set the sound volume to a reasonable level.

Press the ⏻/I STANDBY/ON button on the front panel or remote control.



The STANDBY indicator goes out.

The display window shows the initial information as shown below.

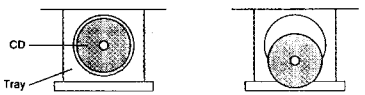


Inserting/removing a disc

Press the ≙ OPEN/CLOSE button to open the disc tray. Then place the disc in the round recess of the tray with label side up. To close the tray, press the ≙ OPEN/CLOSE button again.

Note

When loading a disc in the disc tray, be sure to position the disc inside the recess. Otherwise, the disc will be damaged when the disc tray is closed, and the disc cannot be removed from the unit.



Starting to play a disc

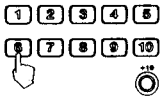
Press the ► SELECT (PLAY) button. The Player starts to play the disc.
For individual track selection, use the number keys or the ⏮/⏭ PREV/NEXT buttons.

When you start play, the Display window shows the track number being played.
If the PBC function is activated, the display window shows "Pbc" until you play a track, and the television screen shows the initial menu, DISC number, and "PBC". See page 15, "Operation of Playback Control function".
When you press ► SELECT button during play, the disc will restart from the beginning of the track except when the PBC function is activated.

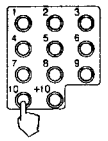
Using number keys

Press the number keys to select numbers.

On the Player ..... 1 to 10 and +10 key
Example: For number 5, press 5. For number 15, press +10, then 5. For number 20, press +10 button, then 10. For number 32, press +10 three times, then 2.



On the remote control ..... 1 to 10 and +10 key
Select numbers as described above.

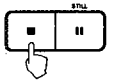


Note

- When you press the number keys, the track will start playing without pressing ► SELECT button.

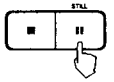
Stopping play

Press the ■ (STOP) button to stop play at any time.



Pausing play

Press the ⏸ STILL (PAUSE) button to temporarily suspend play.

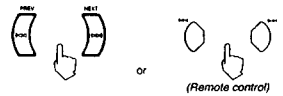


Notes

- When the ⏸ STILL (PAUSE) button is pressed once, "PAUSE" appears on the television screen, the video motion freezes and the sound is turned off. The still picture advances frame-by-frame each time the ⏸ STILL (PAUSE) button is pressed, or the shuttle dial is rotated to the right. This frame-by-frame function is effective only for video CDs.
- To release the pause, press the ► SELECT button.
- During "PAUSE" the time counter on the display will blink.

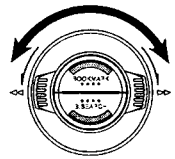
Auto search/Manual search

On the Player, during play, pressing the ⏮ PREV button once causes the Player to replay the current track from the beginning. Pressing the ⏭ NEXT button once causes the Player to skip to the next track. The current position on the disc is displayed on the television screen.

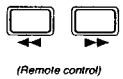


(Remote control)

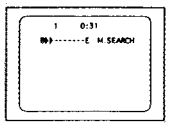
Rotating the shuttle dial to the right causes the disc to fast forward. Rotating it to the left causes it to fast reverse.



On the remote control, holding down the ◀◀/▶▶ buttons causes the disc to fast forward or reverse.
Continuing to hold down the buttons causes it to search much faster.



(Remote control)



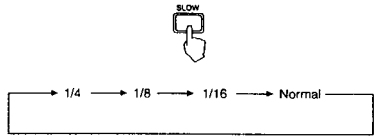
(Television screen)

Notes

- In some circumstances, this function is not available when the PBC function is activated.
- The angle at which you hold the shuttle dial determines the manual search speed.

Slow-motion playback on the remote control unit

Press the SLOW button to play in slow-motion. By pressing the SLOW button consecutively, the playback speeds are cycled as shown below.

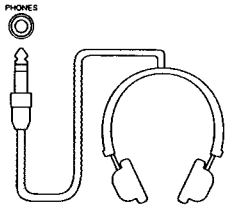


Note

- This function can only be used when playing a video CD.

Using stereo headphones

Connecting stereo headphones
Connect stereo headphones to the PHONES jack at the lower-left of the front panel. The volume level is fixed and cannot be adjusted.



VARIOUS UNIQUE FUNCTIONS

Various functions can enhance your enjoyment

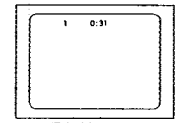
Display of operations status

Preparation
This function is controlled by the remote control.

Operation
Press the ON SCREEN button. By pressing the ON SCREEN button, the following information may be easily and quickly displayed or removed from the television screen.

Time, Echo effect, Key control, Program, Repeat, Random, Multiplexing, Vocal replace, Bookmark, etc.

(Remote control)



(Television screen)

Programming the track sequence you want

Preparation
It is not possible to enter programming mode during play. If playing, stop the player with the ■ (STOP) button.

Operation
1. **Press the PROGRAM button to enter the programming mode. "PROGRAM" is displayed in the Display Window.**

2. **Specify the track by the number keys successively. You can program up to nine (9) tracks by repeating this procedure.**
3. **To play the programmed tracks press the ► SELECT button.**

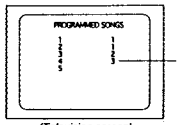
Notes

- The track number playing, next track programmed, and number of remained programmed tracks are displayed from the right-top of the television screen. You may use the ON SCREEN button to delete this information.
- Once the programmed track is played, it is deleted from the program.
- You may continue to program even while the disc is playing.

Canceling a programmed track

Operation
There are three (3) canceling functions (canceling the last programmed track, canceling the current track, canceling the next track to be played).

- **To cancel the last programmed track press the CANCEL button on the remote control and the last programmed track will be canceled. This can be done while a disc is playing.**



The number located lowest is the last track programmed.

(Television screen)

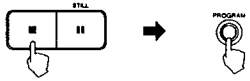
- **To cancel the current track press ■ (STOP) button.**
- **To cancel the next track, wait until the current track has finished and press the ⏭ NEXT button and the next track will be canceled and the unit will go to the next programmed track.**

Note

- To verify the tracks you programmed, stop the Player and see ON SCREEN information

Clearing a program

To delete all programmed tracks you have entered, press the ■ (STOP) button and then the PROGRAM button. "PROG OFF" will be displayed on the television screen.



Note

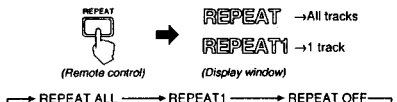
- The Player does not cancel the track program even if the ■ (STOP) button is pressed. Pressing the ► SELECT (PLAY) button again causes the Player to resume playing from the next track.

Repeating tracks

It is possible to repeat a whole disc or only a single track.

Preparation
This function is controlled by the remote control.

Operation
Press the REPEAT button. Channel REPEAT modes are cycled as shown below.



(Television screen)

Notes
- When playing a programmed sequence of tracks, only one track repeat is available.
- Only REPEAT1 is available in KARAOKE mode.
- The Repeat function is not available when the player is set to PBC ON.
- Only REPEAT ALL is available when the player is in RANDOM mode.
- You cannot repeat the segment between bookmarks.

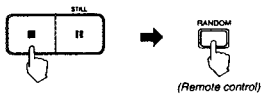
Randomly playing tracks

Preparations
- This function is controlled by the remote control.
- The RANDOM button is effective only in NORMAL or PBC OFF mode.
- This function plays tracks randomly from one disc.

Operation
1. **Stop the Player.**
2. **Press the RANDOM button and random playing will start.**

(Remote control)

3. **To cancel random playing, after stopping the Player (■ STOP button), press the RANDOM button again.**

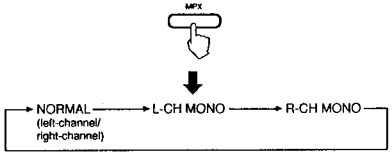


Note
- Random is not effective in PROGRAM or KARAOKE mode.

Playing a multiplex sound CD

This function is used for multiplex sound discs.

Operation
By pressing the MPX button consecutively, channel multiplexing modes are cycled as shown below.



(Television screen)

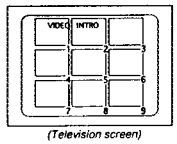
Viewing the VIDEO INTRO of a video CD

Using this function, you can check the contents of a video CD, watching the first five seconds of each track on the video CD.

Preparation
When you play a video CD with the Playback Control function, the mode switch should be in the PBC OFF mode or KARAOKE mode.

Operation
1. **Play the disc you want to see a digest of.**
2. **Press the VIDEO INTRO button on the Player or the remote control after starting disc play. Then the Player starts to display in sequence the first five (5) seconds and track numbers of all tracks on the disc.**

3. **To select a track during digest display, press the number key corresponding to the item number on the television screen.**



(Television screen)

Programming during VIDEO INTRO

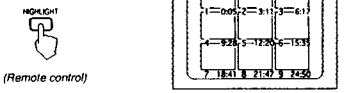
Operation
1. **Stop play.**
2. **Press the PROGRAM button so that PROGRAM is lit in the display.**
3. **Enter 1 on the number keys.**
4. **Press the ► SELECT button and then, after the disc has started to play, press the VIDEO INTRO button.**
5. **The Player starts to display in sequence the first five (5) seconds and track numbers of all tracks on the disc. Select the numbers you want to program. You can program nine (9) tracks.**
6. **Press the ► SELECT button to play.**

Viewing the highlights of a video CD

Using this function, you can watch nine highlight scenes of the selected track on a video CD. These highlight scenes are created by dividing the track equally into nine portions and the beginning (five seconds each) of those nine scenes are shown on the display.

Preparations
- When you play a video CD with the Playback Control function, the mode switch should be in the PBC OFF mode or KARAOKE mode.
- This function is controlled by the remote control unit.

Operation
1. **Start playing the track you want to see the highlights of.**
2. **After the track begins to play, press the HIGHLIGHT button.**



(Television screen)

3. **To select one of the nine (9) segments, press the number key (1 to 9) of the segment which you want to play.**

Notes
- When you choose a highlight it will start from five (5) seconds before the shown time below each segment.
- Nine (9) different highlights are displayed for one (1) minute.
- If no highlight is chosen in the one (1) minute period in NORMAL mode or PBC OFF mode, the next nine (9) segment highlights will begin. In KARAOKE mode highlights will stop.
- While in VIDEO INTRO or HIGHLIGHT, sometimes image is partially distorted. This symptom is caused by noise in the disc itself or incorrect manufacturing, not by a malfunction of the Player.

Skipping ahead during playback using TIME SKIP function

It is possible to skip specified minutes ahead during playback.

Preparations
This function is controlled by the remote control.

Operation
By pressing the TIME SKIP button during playback, the player skips specified minutes ahead and resumes playback. If the player cannot resume playback by some reason, the player skips ahead again and resumes playback.

Notes
- The default skip time is one second.

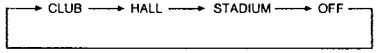
To set the skip time:
1. Stop the Player.
2. Press the TIME SKIP button for more than 3 seconds.
3. Specify the skip time between 1 and 10 (minutes) with number keys.

Selecting the surround mode

You can change the sound ambiance using the Surround function.

Operation
1. **Choose from among the following three surround modes to change the disc mood.**
   - **CLUB:** A more intimate sound with greater resonance and bass.
   - **HALL:** Enhances the mid-frequency range (which the human voice occupies), imitating the effect achieved in a concert hall.
   - **STADIUM:** Adds presence and spreads the sound, like in a stadium.
2. **To select the surround mode, press the SURROUND button until the name of the desired sound mode appears on the television screen and in the display window.**

Each time you press the button, the mode changes as follows:



(Television screen)

3. **To cancel the effect, press the SURROUND button until "OFF" appears on the television screen.**

Note
- When the Player is in one of the three Surround modes, you cannot use the key control, digital echo, vocal replace and MPX functions.

Playback with the Bookmark function

Marking segments for later viewing with the Bookmark function

The Bookmark function lets you mark segments of a video CD, so that you can have almost instant playback of desired scenes later. You can mark segments on up to ten discs, with a maximum of nine segments per disc.

Even if you take the disc out of the player, its bookmarks will stay stored for later use, until you erase them.

Operation

While playing the disc, press the BOOKMARK button at the segments you want to mark for later playing. Bookmark numbers appear on the television screen.

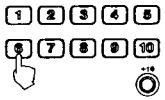
Notes

- The Bookmark function works only with video CDs.
- The Bookmark function is most easily used when the Player is in PBC OFF mode.
- When you begin marking segments in any one of the three Player modes (KARAOKE, NORMAL or PBC OFF), all subsequent markings and searches for that disc must be done in the same mode.
- If you mark a segment when the Player is set for the Playback Control (PBC) function, the bookmark is placed at the beginning of the scene.
- Normally, the markings are retained for a few days. However, the markings registered may be lost if power failure occurs or you unplug the powr cord. In such a case, register the markings again.

Using the Bookmark Digest function

1. **Press the BOOK DIGEST button while playing the disc.**

2. **The marked segments will be highlighted on the screen, with their respective numbers (maximum of nine).**
3. **Press the Number key (1 to 9) which corresponds to the number of the segment where you want to start play.**



Notes

- If you plan to use the Bookmark Digest function, register all bookmarks with the player in the same mode.
- The Bookmark Digest function is not available in PBC function.

Using the Bookmark Search function

■ With PBC off

1. **Press the B.SEARCH button while playing a disc. The B.SEARCH light will flash on and off, indicating the Player is in the Bookmark Search mode.**

2. **Press the Number key (1 to 9) which corresponds to the number of the segment where you want to start play. Or press the I◄◄ PREV or ►►I NEXT button until the desired bookmark number appears on the screen.**

Note

- To exit the Bookmark Search mode and return to regular viewing, press the B.SEARCH button again.

■ With PBC on

1. **Press the B.SEARCH button while playing a disc. The play will stop and the Player will enter Bookmark Search mode.**

2. **Press the Number key (1 to 9) which corresponds to the number of the segment where you want to start play.**

Note

- The Bookmark Search function ends automatically, and the player returns to regular viewing.

Canceling individual bookmarks

1. **If the Player is in PBC OFF mode, start playing the segment whose bookmark you want to cancel.**
2. **Press the CANCEL button. The bookmark for the segment immediately preceding the part you are playing will be canceled. (If the Player is in KARAOKE or NORMAL mode, the bookmark with the highest number will be canceled.)**

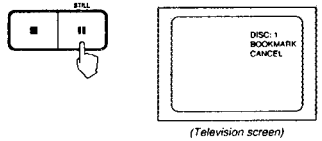
Notes

- When you cancel a bookmark number, all subsequent bookmark numbers change, moving up one level to fill the gap you made.
- If the Player is in PBC ON mode, the last bookmark you registered will be canceled.

Canceling all bookmarks

■ When the disc whose bookmarks you want to cancel is in the Player:
This cancels all bookmarks on the disc whose play you stopped.

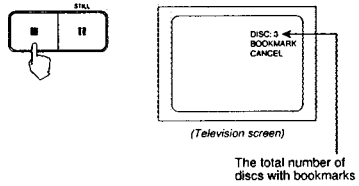
1. **Stop play. Hold down the ▮▮ STILL (PAUSE) button on the Player for at least three seconds.**
2. **Keep holding down the ▮▮ STILL (PAUSE) button until bookmark information on the television screen stops blinking.**



(Television screen)

■ When the disc whose bookmarks you want to cancel is not in the Player:
This cancels all bookmarks on the disc which was played the least recently.

1. **Hold down the ■ STOP button on the Player for at least three seconds.**



(Television screen)

The total number of discs with bookmarks

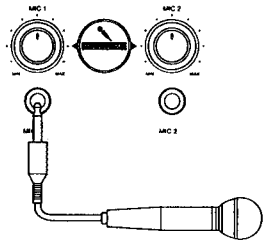
2. **Keep holding down the ■ STOP button until bookmark information on the television screen stops blinking.**

Using microphones

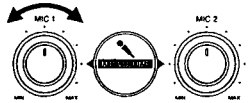
Using wired microphones

Operation

1. **Up to two microphones can be connected to the MIC jacks on the front panel.**



2. **Switch the microphone power on.**
3. **Turn the MIC knobs clockwise (level up) or counterclockwise (level down) as desired.**



ATTENTION

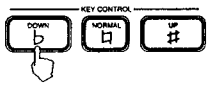
When you are not using the microphone, set the MIC switch to OFF.

Using a microphone with the Key Control function

You can change the music key using a microphone with the Key Control function.
Insert the KEY CONTROL plug in the KEY CONTROL jack.

Adjusting music key

Press the KEY CONTROL button (♭ or #) to change the key in which the music plays. To return the music to its original key, press the NORMAL button.
You can also adjust the music key using the remote control unit and a microphone with the Key Control function.
See "Using a microphone with the Key Control function" on page 13.



Notes
- The degree the key has been sharpened or flattened is displayed on the television screen.
- When the song ends the key control will return to NORMAL mode automatically.

Adjusting echo effect

Turn the DIGITAL ECHO knob clockwise (level up) or counter-clockwise (level down) to adjust the echo effect as desired.

Vocal replace

Using this function, you can replace the vocal part (recorded on the right channel) while singing along. If you stop singing while a source is still playing, the original vocal sound resumes.

Preparation
This function is used for multiplex sound discs.

Operation
1. **Press the VOCAL REPLACE button during play or stop. REPLACE will appear on the display window and VO.REPLACE will appear on the television screen. When you start singing, the disc vocal is removed and your voice is inserted into the music.**

2. **To cancel voice replacement, press the VOCAL REPLACE button again.**

Note
- You cannot use the Vocal Replace function with a disc that has vocals recorded on the left channel.

OPERATION OF PLAYBACK CONTROL FUNCTION

Playing Video CDs with Playback Control function

This Player provides a Playback Control (PBC) function which utilizes a procedure (menu selection) programmed in a video CD. The playback operation procedure may differ depending on the disc you use.

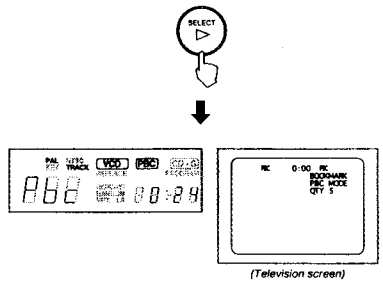
The Playback Control function is described below and in the figure.
- High-resolution still image display - Super-fine reproduction of still images with more than 4 times the resolution of video tape.
- Menu-driven playback - interactive menus for easy selection of tracks

Preparation
- A video CD with the Playback Control function is required for this operation.
- Only the NORMAL mode can be used.
- The buttons available for use are the number keys, the I◄◄/►►I PREV/NEXT buttons, ► SELECT button, and ↶ RETURN button.

Button functions

Number keys (Including +10 button)	Select a specific menu item from the television screen or monitor.
I◄◄/►►I PREV/NEXT buttons	Move through menu.
► SELECT button	Starts up a video CD with the PBC function in the DISC tray.
↶ RETURN button	Returns to the menu.

Operation
1. **Verify that the Player is in NORMAL mode.**
2. **Press the ► SELECT button, and then the Player starts up the PBC function. "Pbc" is shown in the Display window. The main menu, "PBC", and track numbers are displayed on the television screen.**



(Television screen)

3. **To move through the disc menus, press the I◄◄ PREV / ►►I NEXT buttons.**

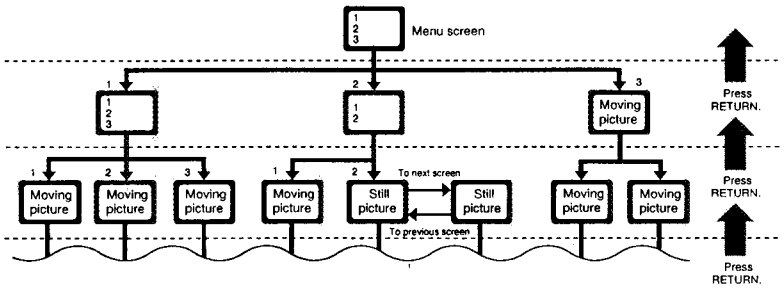
4. **When the disc menu you want appears, select an item in the menu by using the number keys. The numbers on the number keys correspond to the menu item numbers.**
5. **To return to a menu and stop the track being played, press the ↶ RETURN button.**

Notes
- Page numbers in the disc menu show that preceding pages exist. To move from the current menu, press the I◄◄ PREV / ►►I NEXT buttons.
- If you have no desire to use the PBC function when playing a disc with the PBC function, switch the MODE switch to "PBC OFF" before playing.
- If you change the mode switch (except to NORMAL mode) when playing a Playback-Control disc, the play stops, so reset again from the beginning.

Video CDs with Playback Control function

What is Playback Control function?
The Playback Control function, allows you to enjoy menu-driven operation and high-resolution still images having a resolution four times greater than moving pictures.

Example of playback using the Playback Control function



A selection menu is displayed when you start playing a video CD disc with the Playback Control feature. The selection menu shows a list of numbers for selection. Some discs may show moving pictures or a divided screen.

1. When a list of numbers is displayed, selecting a number shows its contents.
2. When a moving picture is displayed, pressing ► SELECT, at the time when the part of the movie you desire is shown, plays the movie.
3. When the selection menu is redisplayed after you have played your selection, selecting a number again replays its contents. (Some discs may show the menu screen several times.)

When "Next" and "Prev" are shown, pressing the ⏮ PREV / ⏭ NEXT buttons can change the selection menu.

4. After playback, press ↩ RETURN to go back to the previous screen.
   After playback, pressing ↩ RETURN for 2 seconds or more causes it to go back to the previous menu selection. Some discs may return you to the menu screen shown before playback.

Note

- When a menu is displayed for a long time (about 10 minutes), the screen background automatically fades out to prevent screen burn-in while the setting is suspended. This function may not work depending on the disc being played.

RESTRICTING USE OF YOUR DISCS

Locking a disc with the Read-Protect function

Locking a disc

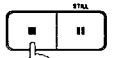
The Read-Protect function restricts viewing of a disc. Only people who know the code can unlock the disc. You can lock only Video CDs (up to a maximum of 10 discs).

Notes

- When you lock a disc using the Read-Protect function, your Player recognizes the number of tracks and the recorded time on that disc. If you try to play another disc which has exactly the same number of tracks and the same recorded time, the Player may mistakenly assume that it is the locked disc.
- You cannot lock a disc while it is playing, or when the VCD light is blinking (i.e., immediately after turning on the player or shutting a disc tray). Stop the disc, then lock it.
- All Read-Protect functions are performed using buttons on the Player, not on the remote control.
- Normally, the markings are retained for a few days. However, the markings registered may be lost if power failure occurs or you unplug the power cord. In such a case, register the markings again.

Operation

1. Play the disc for a moment, then press the ■ (Stop) button.



2. Hold down the ⏭ NEXT button on the Player for at least three seconds. The track and time numbers are no longer displayed.

3. Press the Number key 8 four times. The Display window indicates "Loc."

Now the disc cannot be viewed. You can open and close the tray and you can turn the Player power on and off, but no other functions are available for this locked disc.

Notes

- "PROTECT" is displayed on the television screen.

Cut out the following instructions and keep them separately, to ensure privacy.

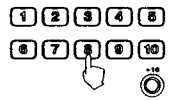
Canceling Read-Protect

Operation

1. Place the disc in the tray, then press the ► SELECT button. "PROTECT" is displayed on the television screen.

2. Hold down the ⏮ PREV (Previous) button on the Player for more than three seconds. "Loc" in the Display window will flicker for a moment.

3. Press the Number key 8 four times. You can now play the disc.



Canceling Read-Protect for a single viewing

Operation

1. As above, hold down the ⏮ PREV (Previous) button on the Player for at least three seconds. The indication "Loc" in the Display window will flicker for a moment.

2. Press the Number key 7 four times. You can now play the disc, but only until you press the ≙ OPEN/CLOSE button. (Turning off the Player power does not lock the disc again.) This function is convenient when you want to play a disc, but you also want to restrict its use later.

GRAPHIC/DIGITAL AUDIO CDs

Playing CD Graphics/ digital audio CDs

Playing CD Graphics

Basic video CD-playing procedures apply although the pictures are still. A CD Graphics is identified by "CD-G" shown on the display.

Notes

- The following operations may distort the image on the screen.
  - Searching for starting point of music
  - Fast forwarding/reversing
  - Stop/pause
- If paused, the screen changes to blue in a few minutes. This is to prevent burn-in of the TV screen.

Playing digital audio CDs

Basic video CD-playing procedures apply to the reproduction of sound.

Note

- The display has no indicator to show disc type.

SPECIFICATIONS

Main specifications

XL-SV22BK

Model	Video CD player	
Playback disc	Video CD (with/without Playback Control function) CD Graphics Digital Audio CD	
Total harmonic distortion	0.01% (1kHz)	
S/N ratio	90 dB (Best case)	
Frequency response	20Hz – 20kHz	
Input terminal	Microphone	2 mV (9.1 kΩ)
Output terminal	Audio output	2.0 Vrms (full scale)
	Image output Video (composite)	1.0 Vp-p (75Ω)
Echoing	Digital echoing	
Power requirements	AC 115-127/220-240V ∿ adjustable with the voltage selector; 50/60Hz	
Power consumption	14 watts In standby mode	8 watts
Weight	4.4 kg (9.7 lbs)	
Dimensions (W/H/D)	435 x 127 x 333.5 mm 17-3/16 x 5 x13-3/16 inches	

Accessories

AC power cord 1
Audio video cord 1
Remote control unit (RM-SXSV22U) 1
Batteries (R6P(SUM-3)/AA(15F)) 2
AC plug adaptor (except Hong Kong and China) 1

TROUBLESHOOTING

Troubleshooting

What appears to be a malfunction may not always be so. Please go through the following list before requesting service.

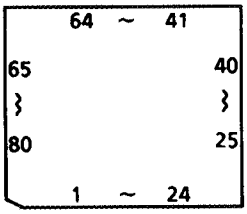
Symptom	Possible cause	Remedy
Power does not come on.	Power plug is disconnected from AC outlet.	Firmly connect the plug to AC outlet.
Remote control does not work.	The tip of the remote controller is not pointed at the receiving part of the player.	Use the remote control correctly.
	Batteries are exhausted.	Replace the batteries with new ones.
No image is displayed on the monitor.	The video cable is not connected.	Firmly connect the cable.
	The TV is not set in video mode.	Set the TV in video mode.
	An incompatible disc is loaded.	Load a disc compatible with the player.
	Disc is locked	Unlock the disc
Playback does not start.	No disc is loaded.	Load a disc.
	Disc is loaded upside down.	Reload the disc with the label up.
Speaker does not produce sound.	Audio cable is not connected.	Firmly connect the cable.
	Operation of the external amplifier is incorrect.	Operate the amplifier correctly.
Sound is distorted or noise is generated. Image is garbled.	Disc is dirty.	Wipe the disc surface with a soft cloth.
	Connection is wrong.	Correctly connect cables. (See page 2.)
Sound is intermittent. Image is garbled.	Disc is dirty.	Wipe the disc surface with a soft cloth. (See page 1.)
	Disc is scratched.	Replace the disc with a new one.
	Disc is warped.	
Disc tray does not come out when OPEN/CLOSE button is pressed.	Power plug is disconnected from the power outlet.	Firmly insert the plug into the outlet.
Operation is not possible.	Microcomputer malfunctions due to lightning or static electricity.	Turn the power off, then on again.

The malfunction may be caused by a device other than the player. Check other devices connected to the player.

Diescription of Major ICs

■ HD6433726SD50F(IC201):SYSTEM MICON

1.Pin Layout



KEY matrix

OUT \ IN	KEY IN1 (50PIN)	KEY IN2 (51PIN)	KEY IN3 (52PIN)	KEY IN4 (53PIN)
8G/KEYO 0 (48PIN)	VIDEO INTRO (S901)	BOOK DIGEST (S903)	STOP (S907)	PAUSE (S905)
7G/KEYO 1 (47PIN)	SHUTLLE SW (S930-①)	SHUTLLE SW (S930-②)	SHUTLLE SW (S930-③)	SHUTLLE SW (S930-④)
6G/KEYO 2 (46PIN)	9 (S910)	10 (S908)	PROGRAM (S904)	+10 (S906)
5G/KEYO 3 (45PIN)	5 (S918)	6 (S916)	7 (S914)	8 (S912)
4G/KEYO 4 (44PIN)	1 (S926)	2 (S924)	3 (S922)	4 (S920)
3G/KEYO 5 (43PIN)	RETURN (S909)	PREV (S911)	NEXT (S913)	PLAY (S915)
2G/KEYO 6 (42PIN)				

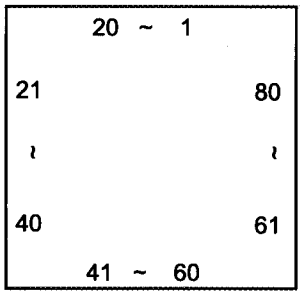
LEFTSW INPUT (79PIN)	P.SW (24PIN)
(S931)	POWER (S936)
MPX (S932)	--
KEY UP (S933)	--
KEY NOR (S934)	--
KEY DOWN (S935)	--
	--

2. Description

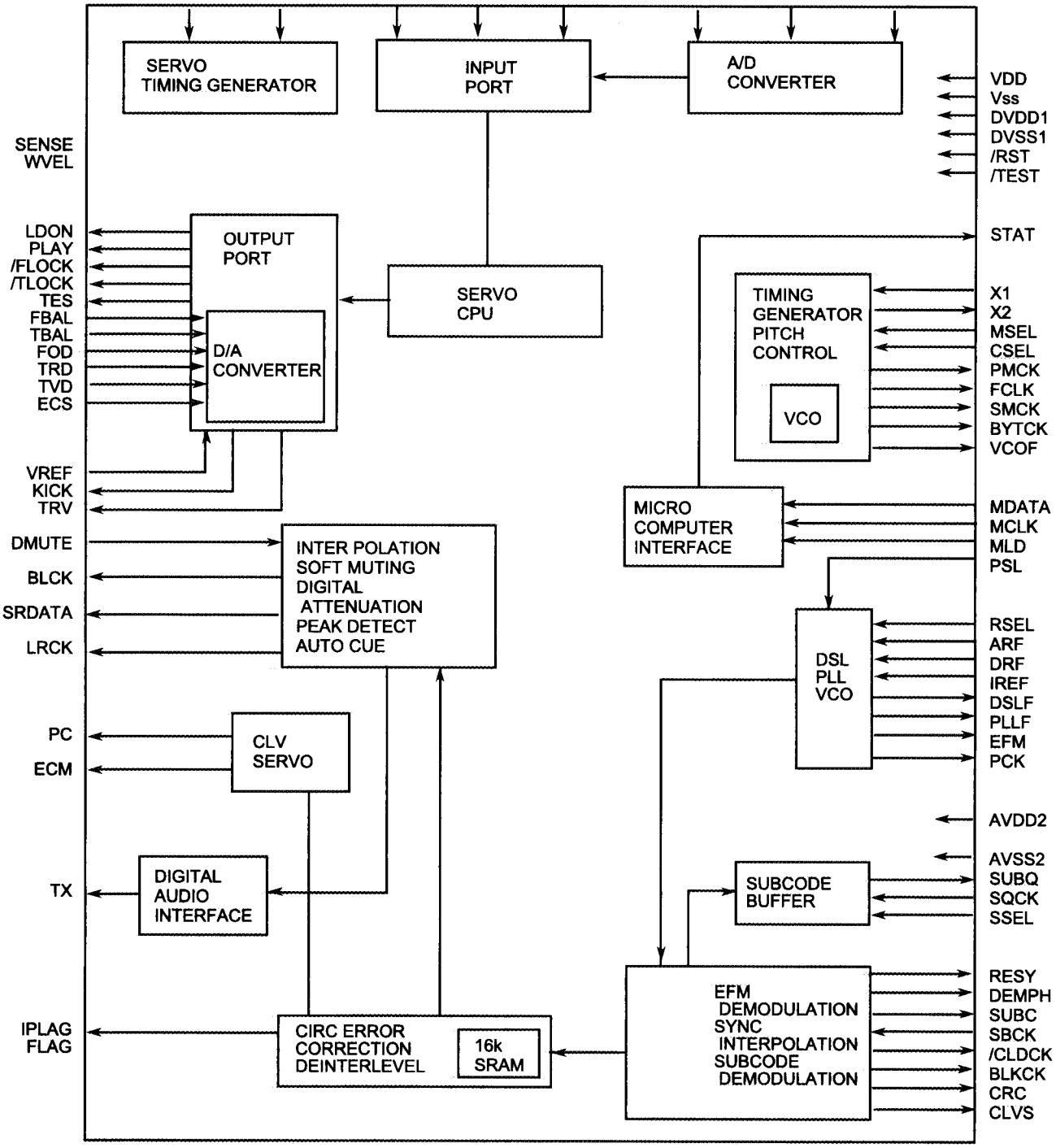
Pin No.	symbol	I/O	Description	Pin No.	symbol	I/O	Description
1	$\overline{\text{FLOCK}}$	I	Tracking lock signal input	40	-VDISP	--	FL – Power suplly
2	$\overline{\text{TLOCK}}$	I	Focus lock signal input	41~48	8G/KEYO0~1G/KEYO7	O	FL grid control output / Key matrix output
3	SENSE	I	Sense signal input	49	SPLV	O	SPATIALIZER level control output
4	TVSW	I	PALL NTSC select terminal	50~53	KEY IN1~4	I	Key matrix input
5	AVSS	--	Connected to ground	54			Not use
6	TEST	--	Connected to ground	55			Not use
7	X2	--	Not use	56			Not use
8	X1	I	(Pull up)	57	+5V	--	Power suplly (+5V)
9	GND	--	GND	58	$\overline{\text{POWER ON}}$	O	Power ON/OFF control output
10	OSC1	--	X'tal osillator connection	59	OPEN	O	Tray Open signal output
11	OSC2	--	X'tal osillator connection	60	CLOSE	O	Tray Close signal output
12	$\overline{\text{RESET}}$	I	Reset signal input	61	$\overline{\text{CLOSESW}}$	I	Tray Close switch signal input
13	HREQ	I	Communication signal input	62	$\overline{\text{OPENSW}}$	I	Tray Open switch signal input
14	$\overline{\text{RMIN}}$	I	Remote signal input	63	VCDRST	O	Reset signal output for IC106
15	IFL	O	μ-com I/F rach pauls output for IC301	64	OSDDT	O	Command data signal output for IC106
16	IFS	O	μ-com I/F data shift clock output IC301	65	OSDCS	O	Chip select for IC106
17	IFD	O	μ-com I/F data output for IC301	66	OSDCLK	O	Command clock signal output for IC106
18	$\overline{\text{LSIRST}}$	O	Reset signal output	67	SQCK	O	Out side clock terminal for Subcode Q resistor
19	$\overline{\text{P.INH}}$	I	INHBIT signal input	68	SUBQ	I	Subcode Q code input
20	HRDY	I	Communication signal input	69	MREQ	O	Data trancefer request signal output
21	CS	--	Chip select terminal (Pullup)	70	SRCLX	O	Command data signal output for IC106
22	REST	--	Pullup	71,72	M2HDT/H2MD	I/O	Serial data output
23	SOUNDIND	O	SOUND indication ON/OFF signal output	73	MLD	O	Command load signal output
24	$\overline{\text{P.SW}}$	I	POWER Key signal input	74	MDATA	O	Command data signal output
25	FMP.ON	O	FM POWER control output	75	MCLK	O	Command clock signal output
26	MARKIND	O	MARK indication ON/OFF signal output	76	+5V	--	Power suplly (+5V)
27	SERCHIND	O	SERCH indication ON/OFF signal output	77	MODESW	I	MODE select terminal
28	FMMUTE	O	FM MUTE control output	78	ECHOVOL	I	ECHOVOL control input
29	MUTE	--	Not use	79	LEFTSW	I	Control key signal input
30	SPON	O	SPATIALIZER ON/OFF control output	80	STAT	I	Status signal (IC401) input
31~39	S1~S9	O	FL segment control output				

■ MN66720RB(IC603):DIGITAL SERVO&DIGITAL SIGNAL PROCESSER

1. Terminal Layout



2.Block Diagram



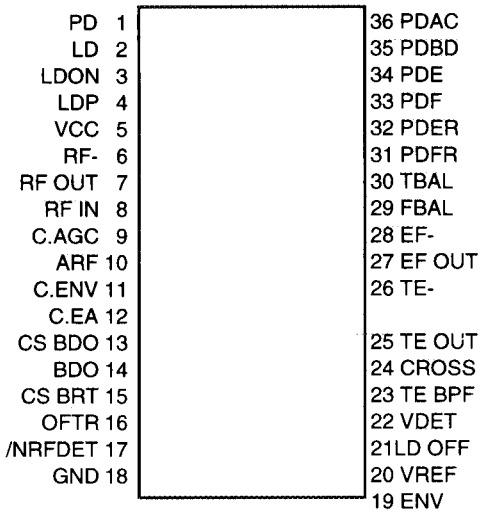
3. Description

Pin No.	symbol	I/O	Description	Pin No.	symbol	I/O	Description
1	BCLK	O	Not used	41	TES	O	Tracking error shunt signal output(H:shunt)
2	LRCK	O	Not used	42	PLAY	–	Not used
3	SRDATA	O	Not used	43	WVEL	–	Not used
4	DVDD1	–	Power supply (Digital)	44	ARF	I	RF signal input
5	DVSS1	–	Connected to GND	45	IREF	I	Reference current input pin
6	TX	O	Digital audio inter output	46	DRF	–	Not use
7	MCLK	I	μ com command clock signal input (Data is latched at signal's rising point)	47	DSLF	I/O	Loop filter pin for DSL
8	MDATA	I	μ com command data input	48	PLLF	I/O	Loop filter pin for PLL
9	MLD	I	μ com command load signal input	49	VCOF	–	Not used
10	SENSE	O	Sence signal output	50	AVDD2	–	Power supply(Analog)
11	/FLOCK	O	Focus clock signal output Active :Low	51	AVSS2	–	Connected to GND(Analog)
12	/TLOCK	O	Tracking clock signal output Active :Low	52	EFM	–	Not used
13	BLKCK	O	sub-code·block·clock signal output	53	PCK	–	Not used
14	SQCK	I	Outside lock for sub-code Q resister input	54	PDO	–	Not used
15	SUBQ	O	Sub-code Q -code output	55	SUBC	–	Not used
16	DMUTE	–	Connected to GND	56	SBCK	–	Not used
17	STATUS	O	Status signal (CRC,CUE,CLVS,TTSTOP,ECLV,SQOK)	57	VSS	–	Connected to GND(for X'tal cscillation circuit)
18	/RST	I	Reset signal input (L:Reset)	58	XI	I	Input of 16.9344MHz X'tal oscillation circuit
19	SMCK	–	Not used	59	X2	O	Output of X'tal oscillation circuit
20	PMCK	–	Not used	60	VDD	–	Power supply(for X'tal cscillationcircuit)
21	TRV	O	Traverse enforced output	61	BYTCK	–	Not used
22	TVD	O	Traverse drive output	62	/CLDCK	O	Not used
23	PC	–	Not used	63	FCLK	–	Not used
24	ECM	O	Spindle motor drive signal (Enforced mode output) 3-State	64	IPPLAG	–	Not used
25	ECS	O	Spindle motor drive signal (Servo error signal output)	65	FLAG	–	Not used
26	KICK	O	Kick pulse output	66	CLVS	–	Not used
27	TRD	O	Tracking drive output	67	CRC	–	Not used
28	FOD	O	Focus drive output	68	DEMPH		Not used
29	VREF	I	Reference voltage input pin for D/A output block (TVD,FOD,FBA,TBAL)	69	RESY	–	Not used
30	FBAL	O	Focus Balance adjust signal output	70	IOSEL	–	pull up
31	TBAL	O	Tracking Balance adjust signal output	71	TEST	–	pull up
32	FE	I	Focus error signal input(Analog input)	72	AVDD1	–	Power supply(Digital)
33	TE	I	Tracking error signal input(Analog input)	73	OUT L	O	Lch audio output
34	RF ENV	I	RF envelope signal input(Analog input)	74	AVSS1	–	Connected to GND
35	VDET	I	Vibration detect signal input(H:detect)	75	OUT R	O	Rch audio output
36	OFT	I	Off track signal input(H:off track)	76	RSEL	–	pull up
37	TRCRS	I	Track cross signal input	77	CSEL	–	Connected to GND
38	/RFDET	I	RF detect signal input(L:detect)	78	PSEL	–	Connected to GND
39	BDO	I	BDO input pin(L:detect)	79	MSEL	–	Connected to GND
40	LDON	O	Laser ON signal output(H:on)	80	SSEL	–	Pull up

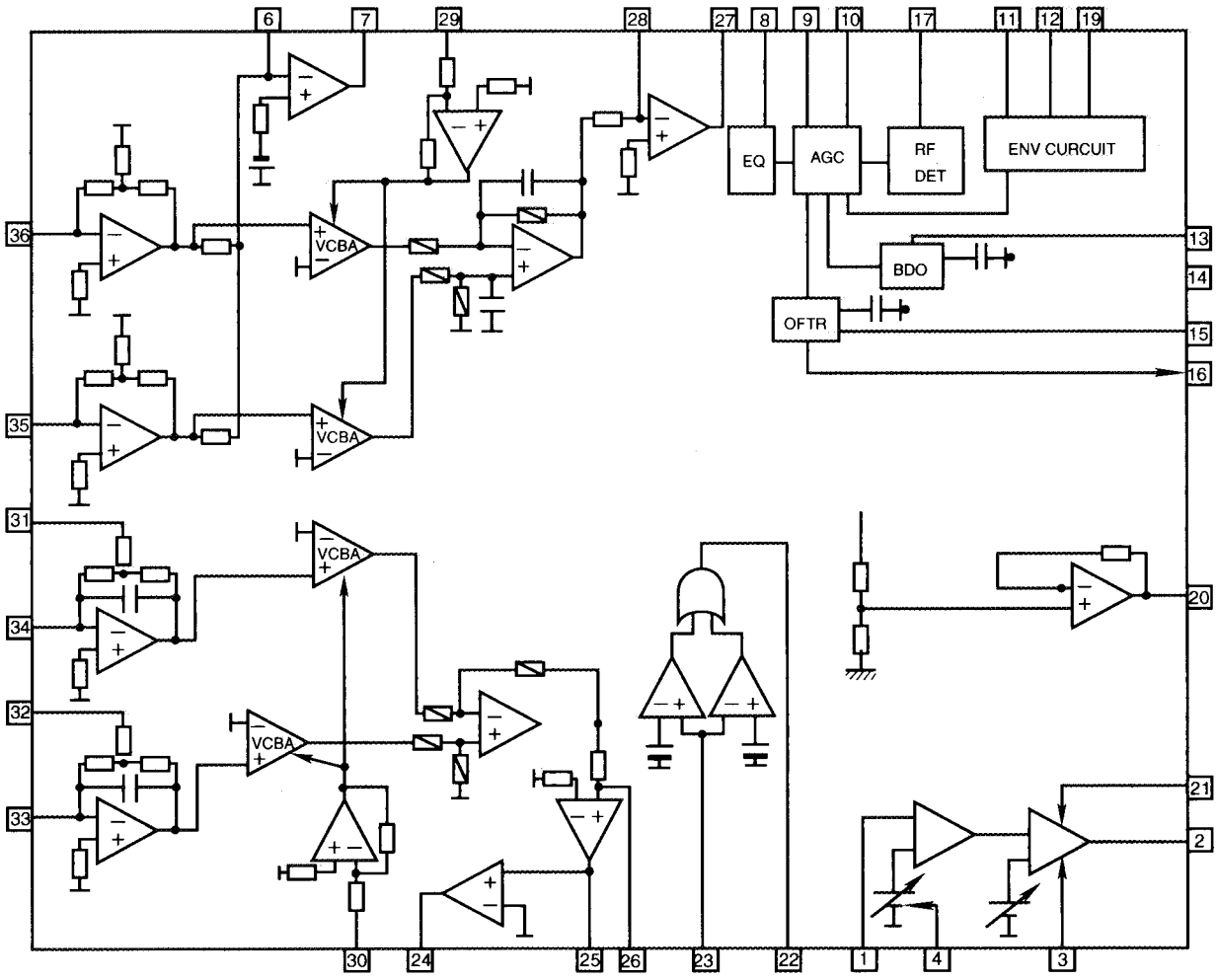
AN8808(IC601) : RF&SERVO AMP

■ AN8806SB(IC601):RF&SERVO AMP

1.Terminal Layout



2.Block Diagram

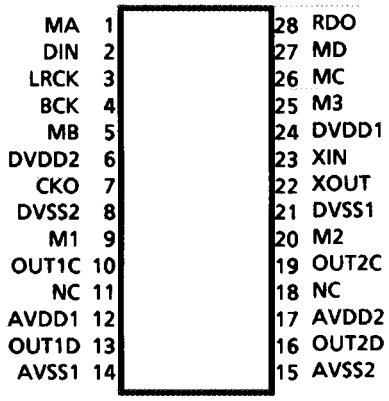


3. Functions

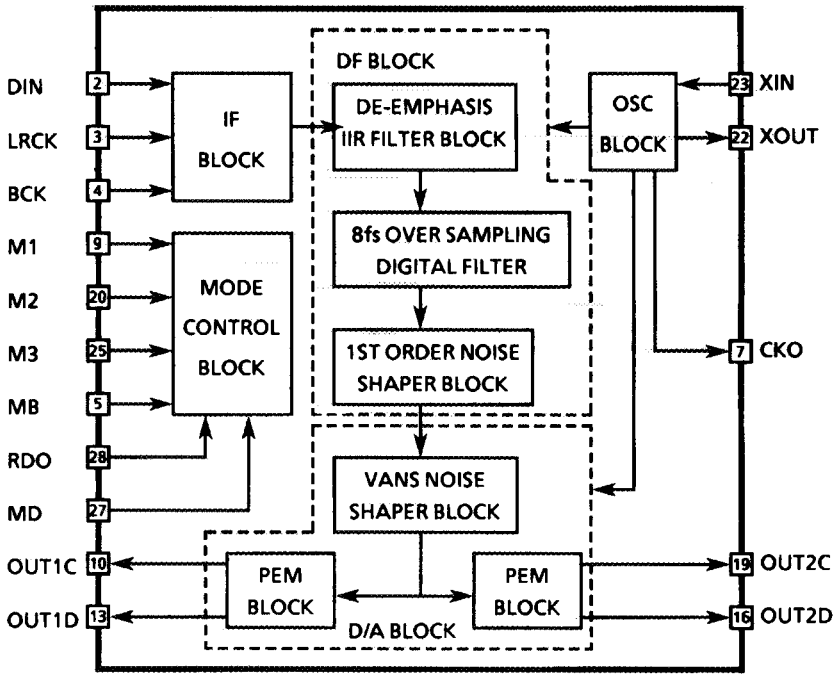
Pin No.	Symbol	I/O	Functions and operations
1	PD	I	APC amp input terminal
2	LD	O	APC amp output terminal
3	LD ON	I	APC ON/OFF control terminal
4	LDP	--	Connect to ground
5	VCC	--	Power suppry
6	RF-	I	Inverse input pin for RF amp
7	RF OUT	O	RFamp output
8	RF IN	I	RF input
9	C.AGC	I/O	Connecting pin of AGC loop filter
10	ARF	O	RF output
11	C.ENV	I/O	A capacitor is connected to this terminal to detect the envelope of RF signal
12	C.EA	I/O	A capacitor is connected to this terminal to detect the envelope of RF signal
13	CS BDO	I/O	A capacitor is connected to detect the lower envelope of RF signal
14	BDO	O	BDO output pin
15	CS BRT	I/O	A capacitor is connected to detect the lower envelope of RF signal
16	OFTR	O	Of-track status signal output
17	/NRFDET	O	RF detection signal output
18	GND	--	Ground
19	ENV	O	Envelope output
20	VREF	O	Reference voltage output
21	LD OFF	--	Connect to ground
22	VDET	O	Vibration detection signal output
23	TE BPF	I	Input pin of tracking error through BPF
24	CROSS	O	Tracking error cross output
25	TE OUT	O	Tracking error signal output
26	TE-	I	Inverse input pin for tracking error amp
27	FE OUT	O	Output pin of focus error
28	FE-	I	Inverse input pin for focus error amp
29	FBAL	I	Focus balance control
30	TBAL	I	Tracking balance control
31	PDFR	I/O	F I-V amp gain control
32	PDER	I/O	E I-V amp gain control
33	PDF	I	I-V amp input
34	PDE	I	I-V amp input
35	PD BD	I	I-V amp input
36	PD AC	I	I-V amp input

■ MN35583 (IC501) : D/A CONVERTER

1. Terminal Layout



2. Block Diagram

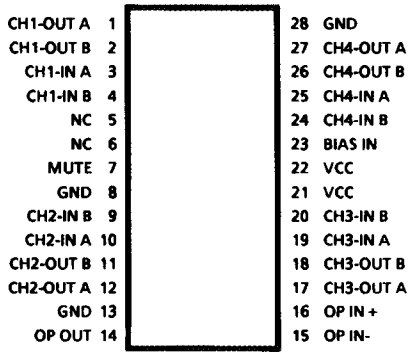


3.Description

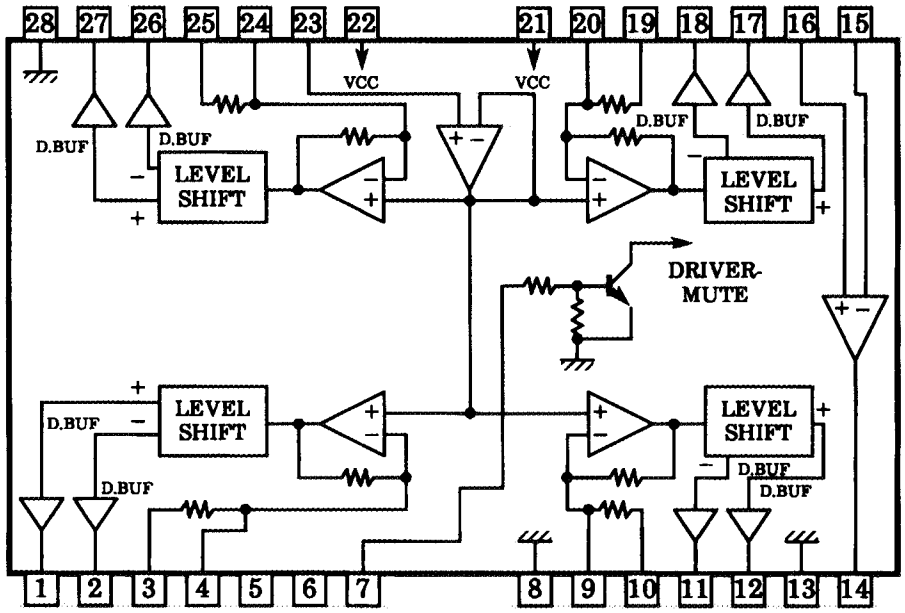
Pin No	Symbol	I/O	Description	Pin No	Symbol	I/O	Description
1	MA	--	Connected to ground	15	AVSS2	--	Analog ground 2
2	DIN	I	Data input	16	OUT2D	O	2D PEM output
3	LRCK	I	LR clock input	17	AVDD2	--	Analog power supply 2
4	BCK	I	Bit clock input	18	NC	--	Non connection
5	MB	I	De-emphasis ON signal	19	OUT2C	O	2C PEM output
6	DVDD2	--	Digital power supply 2	20	M2	--	Connected to ground
7	CKO	I	Clock output	21	DVSS1	--	Digital ground pin 1
8	DVSS2	--	Digital ground 2	22	XOUT	O	Crystal oscillator output
9	M1	--	Connected to ground	23	XIN	I	Crystal oscillator input
10	OUT1C	O	1C PEM output	24	DVDD1	--	Digital power supply 1
11	NC	--	Non connection	25	M3	--	Connected to ground
12	AVDD1	--	Analog power supply 1	26	MC	--	Connected to ground
13	OUT1D	O	1D PEM output	27	MD	I	Reset signal / Digital Att. control signal input
14	AVSS1	--	Analog ground 1	28	RDO	--	Not used

■ BA6897(IC602) :BTL DRIVER

1. Terminal Layout



2. Block Diagram



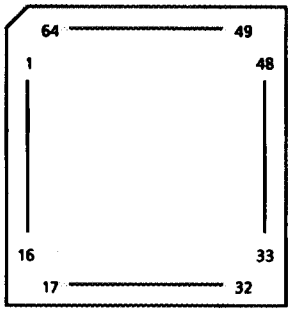
3.Description

Pin No.	Symbol	I/O	Description
1 2	CH1-OUT A CH1-OUT B	O	Focus drive output
3	CH1-IN A	I	Focus drive input
4 5,6 10 19 24	CH1-IN B NC CH2-IN A CH3-IN A CH4-IN B	—	Non connection
7	MUTE	I	Mute signal input pin
9 20	CH2-IN B CH3-IN B	I I	Spindle motor drive input Feed motor drive input
25	CH4-IN A	I	Tracking drive input

Pin No.	Symbol	I/O	Description
8,13,28	GND	—	GND
11 12	CH2-OUT B CH2-OUT A	O	Spindle motor drive output
14	OP OUT	O	OP amp output
15,16	OP IN	I	OP amp input
17 18	CH3-OUT A CH3-OUT B	O	Feed motor drive output
21,22	Vcc	—	Power supply
23	BIAS IN	I	Input pin of Bias
26 27	CH4-OUT B CH4-OUT A	O	Tracking drive output

■ MN17160(IC111) : Host Micon

1. Terminal Layout



2. Terminal description

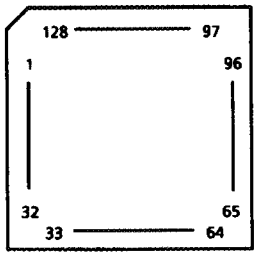
Pin No.	Symbol	I/O	Description	Pin No.	Symbol	I/O	Description
1	480 RST	O	Reset signal output	41~48	SD1~SD8	I/O	SRAM data input/output terminal
2	MREQ	I	Input the transfer request data signal	49	SR/W	O	Read / Write signal input/output
3	ACT INT	I	Interact 2 signal input	50	PAL60	O	
4	G DET	I		51	RESET	I	Reset signal input
5	GND	--	GND	52	X1	--	Non connection
6	DTACK			53	X2	--	Non connection
7	GND	--	GND	54	VSS	--	Ground terminal
8	GND	--	GND	55	OSC2	--	Non connection
9	DIR			56	OSC1	I	Clock input terminal
10	N/PAL	I	NTSC/PAL control signal output	57	VDD	--	Power suplly
11	RGB	O	RGB control signal output	58	HREQ	O	Communication signal output
12	W/R	O	Read / Write signal input/output	59	SRCLK		
13~15	HA0~HA2	O	Address signall output for MPEG LSI	60	M2HDT	O	Serial data output
16	DS	O	Data strobe signal output	61	H2MDT	I	Serial data input
17~24	HD0~HD7	O	Data terminal for MPEG LSI	62	HRDY		Communication signal output
25~39	SA0~SA14	O	SRAM address signal output	63	VCD/G	O	Video switch switching signal output
40	SCS	O	SRAM	64	PALCDG	O	PAL CDG control signal output

■ CL480(IC101) : MPEG decoder

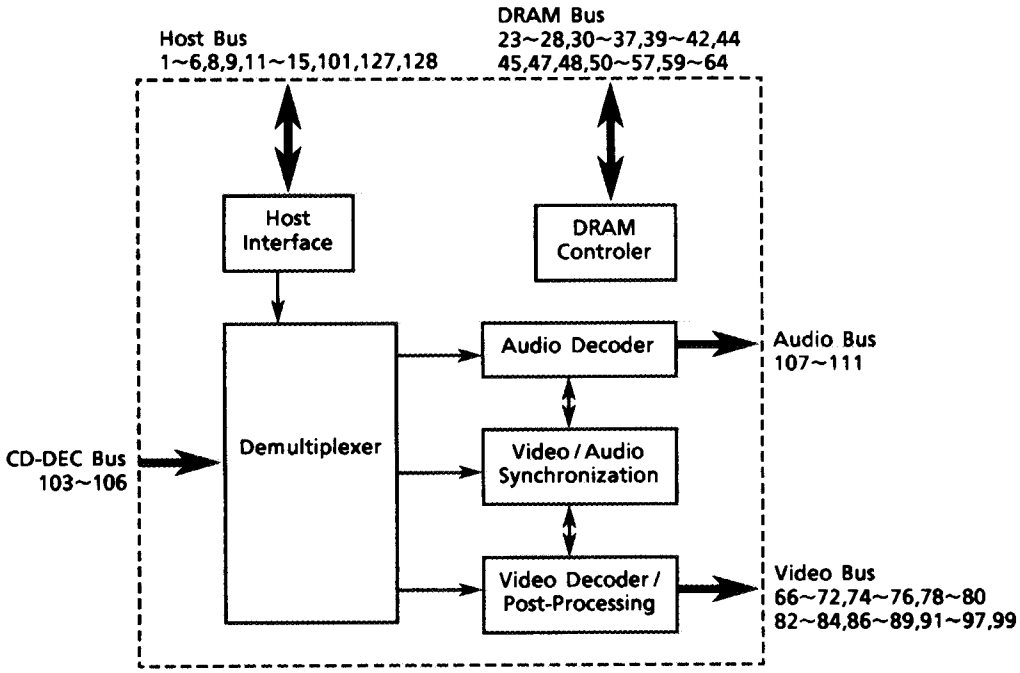
1. Functions

CL480 is MPEG-1 Audio / Video decoder

2. Terminal Layout

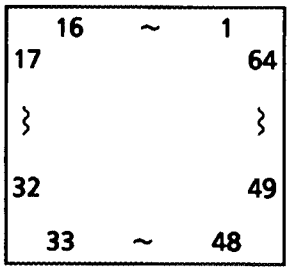


3. Block Diagram



■ BU1417K(IC104) : Digital RGB-Encoder

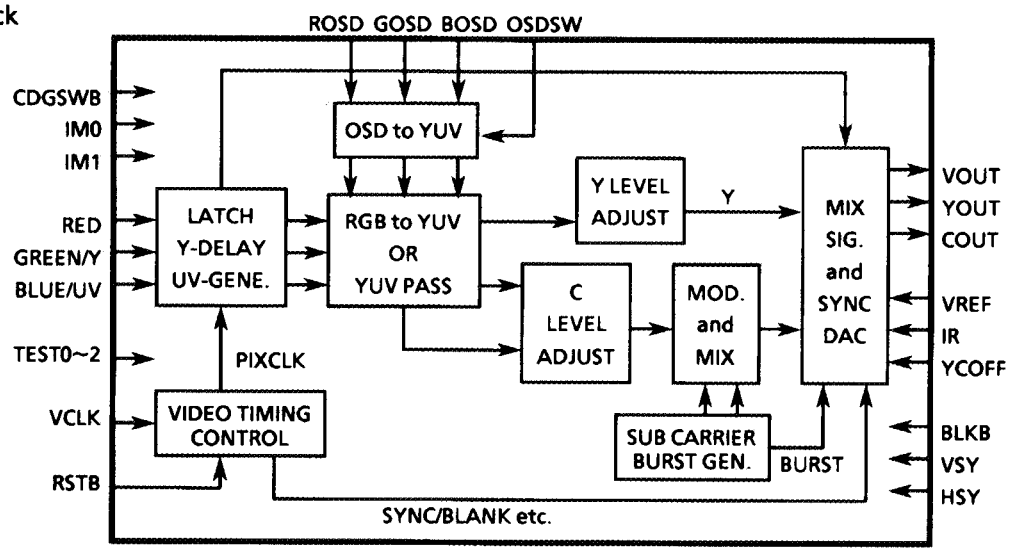
1. Terminal Layout



2. Pin function

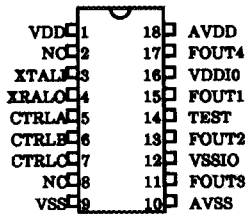
Pin No.	Symble	I/O	Function
1	BOSD	I	OSD Blue data input
2~8	GD0~GD6	I	Green/Y data bit0~bit6 input
9	GND	--	GND
10	GD7	I	Green / Y data bit7 input (MSB)
11~14	BD0~BD3	I	Blue / UV data bit0~bit3 input
15	OSDSW	I	OSD input enable (Input data H : ROSD, GOSD,BOSD color output)
16	CDGSWB	I	Select Videi-CD / CD-G Video-CD(H) ,CD-G(L)
17~20	BD4~BD7	I	Blue / UV data bit4~bit7 input
21	GND	--	GND
22	NC	I	Select NTSC/PAL L : NTSC, H : PAL
23,24	IM0,IM1	I	Not use
25,26	TEST1,2	I	Connected to GND
27	CVSY	I	C-sync input
28	HSY	I	H-Sync input
29	PIXCLK	O	1/2 Frequency of internal clock
30	BLKB	I	Data blanking enable L : output OK
31	VDD	--	Power suplly
32	INT	I	Select Interlace(H) / Non - interlace(L)
33	SLABEB	I	Set mode Master(H) / Slabe(L)
34	ADDH	I	ADD one__line at non - inter.
35	VREF	I	Reference Voltage (1.29V)
36	CGND	--	Chroma output GND
37	COUT	O	Chroma output for 'S' terminal
38	VGND	--	Composite output GND
39	VOUT	O	Composite output
40	AVSS	--	GND
41	NC	--	Non connection
42	IR	I	Reference resister (Set the output vertical for DAC)
43	AVDD	--	Power suplly
44	YGND	--	Luminance output GND
45	YOUT	O	Luminance output for 'S' terminal
46	G4FSC	--	Non connection
47	GCLK	--	Video clock input for VCD
48	YCOFF	--	onnected to GND
49	DVSS	--	GND
50	DVDD	--	Pal 60 on at NTB = high
51	VCLK	I	Video clock input for VCD
52	RSTB	I	Logic part initial reset
53	TEST0	--	Divide input CLK enable
54~56	RD0~RD2	I	Red data bit0~bit2
57	ROSD	I	OSD Red data input
58~60	RD3~RD5	I	Red data bit3~bit5
61	VDD	--	Digital VDD
62,63	RD6,RD7	I	Red data bit6~bit7
64	GOSD	I	OSD Green data input

3. Block



■ BU2173F(IC105): VCO

1.Pin layout

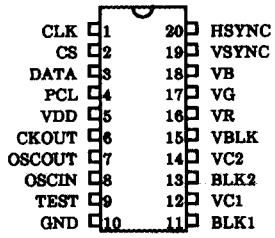


2. Description

Pin No.	symbol	I/O	Description	Pin No.	symbol	I/O	Description
1	VDD	-	Digital VDD	10	AVSS	-	Analog GND
2	NC	-	Not use	11	FOUT3	-	Not use
3	XTALI	I	Input of X'tal oscillation circuit	12	VSSIO	-	Connected to GND
4	XTALO	O	Output of X'tal oscillation circuit	13	FOUT2	O	Clock output terminal 2
5	CTRLA	I	Select of clock Video-CD / CD-G	14	TEST	-	Connected to GND
6	CTRLB	I	Nomal mode = H	15	FOUT1	O	Clock output terminal 1
7	CTRLC	I	Select of clock CD-G PAL / NTSC	16	VDDIO	-	Power suplly
8	NC	-	Connected to GND	17	FOUT4	O	Clock output terminal 4
9	VSS	-	Digital GND	18	AVDD	-	Analog VDD

■ uPD6461GS-635(IC106): OSD

1.Pin layout

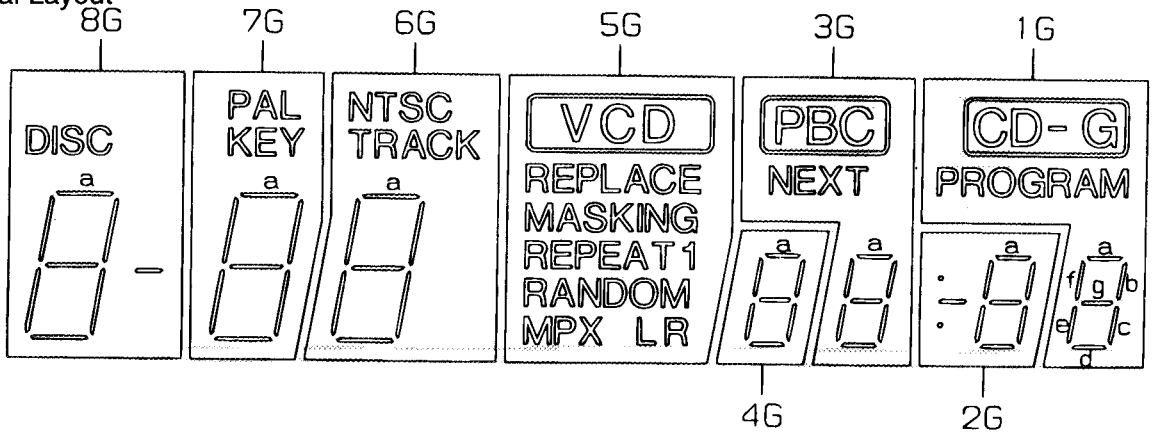


2. Description

Pin No.	symbol	I/O	Description	Pin No.	symbol	I/O	Description
1	CLK	I	Clock signal input	11	BLK1	O	Not used
2	CS	I	Able to transmit serial in L	12	VC1	O	Not used
3	DATA	I	Control data input	13	BLK2	O	Not used
4	PCL	I	Clear pin in power on	14	VC2	O	Not used
5	VDD	--	+ 5V	15	VBLK	O	Blanking signal output
6	CKOUT	O	Not used	16	VR	O	Character signal output
7	OSCOUT	O	Not used	17	VG	O	Character signal output
8	OSCIN	I	Dot Clock signal input	18	VB	O	Character signal output
9	TEST	--	GND	19	VSYNC	I	Vertical syncro signal input
10	GND	--	GND	20	HSYNC	I	Horizontal syncro signal input

Internal Connections the FL Display

1.Terminal Layout



2.Anode Designation

	8G	7G	6G	5G	4G	3G	2G	1G
P1	DISC	PAL	NTSC	VCD	-	PBC	:	CD-G
P2	–	KEY	TRACK	REPLACE	-	NEXT	–	PROGRAM
P3	a	a	a	MASKING	a	a	a	a
P4	b	b	b	REPEAT	b	b	b	b
P5	f	f	f	1	f	f	f	f
P6	g	g	g	RANDOM	g	g	g	g
P7	c	c	c	MPX	c	c	c	c
P8	e	e	e	L	e	e	e	e
P9	d	d	d	R	d	d	d	d

3.Terminal Connection

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
CONNECTION	F1	F1	NP	NP	8G	7G	6G	5G	4G	3G	2G	1G	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	P9	P8	P7	P6	P5	P4	P3	P2	P1	F2	F2

NOTE 1) F1,F2 --- Filament
2) NP ------ No pin
3) NC ------ No connection
4) DL ------ Datum Line
5) 1G~8G --- Grid
6) 視野角は、上側 26°MINとする.

Disassembly Procedures

1. Removing the top cover

1) Remove the 2 screws "A" on the rear and 4 screws "B " on both sides which fix the top panel.
2) Remove the top cover.

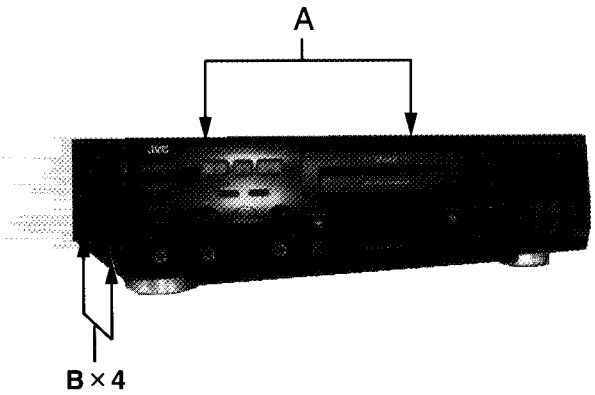


Fig. 1

2. Removing the front panel

1) Remove the top cover.
2) Remove the screw "C " which fixes the Tray.
3) Tune the screw located under the mechanism to remove the tray out of the lading mech.
4) Remove connectors (CN201, CN202, CN203).
5) Remove the 3 screws "D " which fixes the Front panel.
6) Remove the 3 claws and the then front panel.

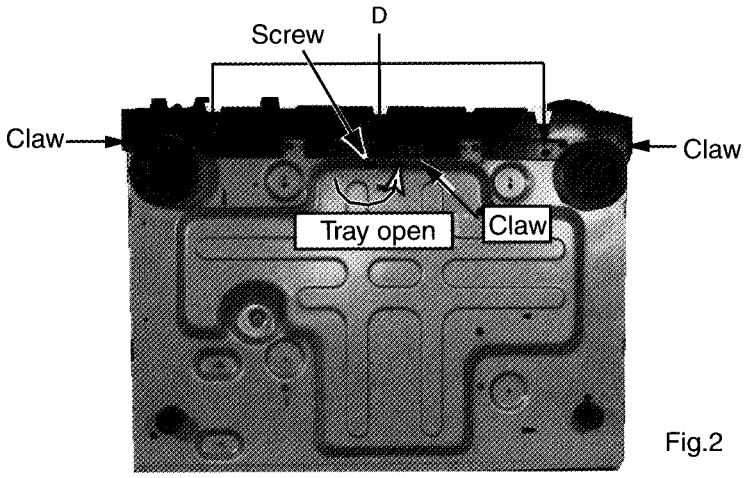


Fig.2

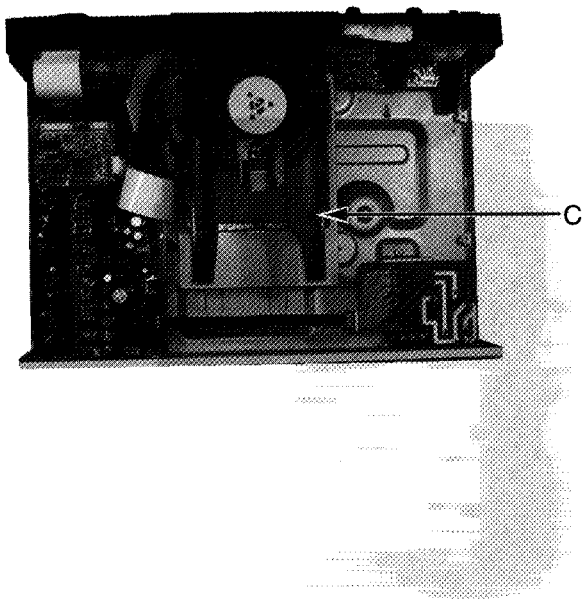


Fig.3

3. Removing the rear panel

1) Remove the top cover.
2) Remove the 8 screws "E" which fix the rear panel.
3) Remove the rear panel.

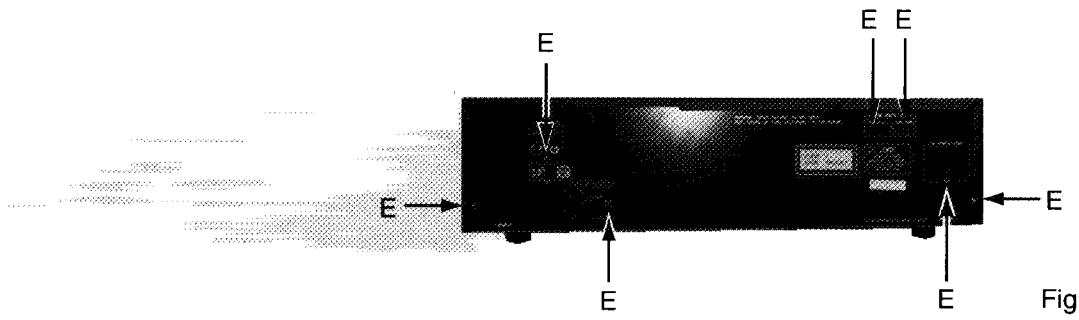


Fig.4

4. Removing the CD mech, Ass'y

1) Remove the top cover.
2) Remove the Tray.
3) Remove the 3 screws "F".
4) Disconnect the CN211 and CN603.
5) Remove the CD mech.Ass'Y.

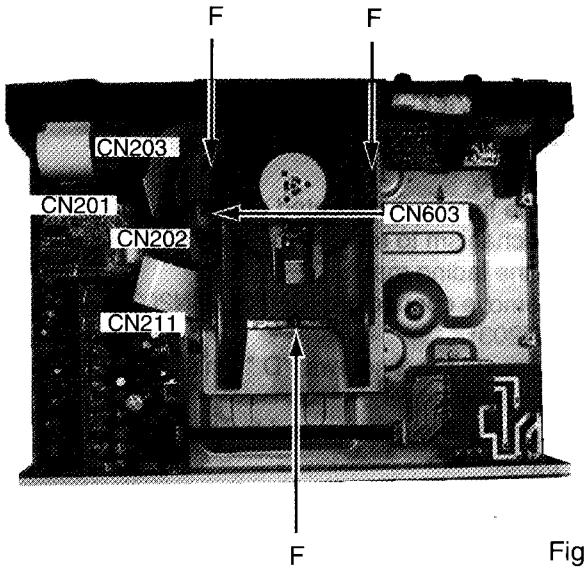


Fig.5

5. Removing the Clamper Ass'y

1) Remove the CD mech. Ass'y.
2) Remove the 2 screws "G" which fix the clamper Ass'y.

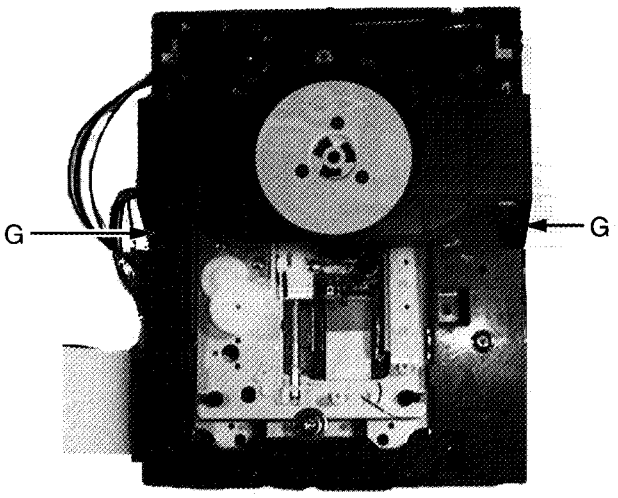


Fig.6

5. CD Main PCB removal

1) Remove the top cover.
2) Remove the rear panel .
3) Disconnect CN101,CN211,CN201 and CN202,CN203,CN603.
4) Remove the 3 screws 'H' holding the CD main PCB.
5) Remove the CD main PCB with the Audio PCB and Video PCB.

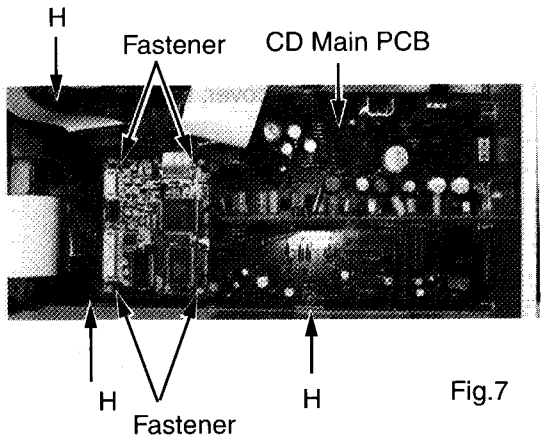


Fig.7

6. Video CD PCB removal

1) Remove the top cover.
2) Disconnect CN102,CN103 and CN101.
3) Remove the 4 fasteners holding the Video CD PCB.
5) Remove the Video PCB .

7. CD servo PCB Removal

1) Remove the CD mech.ass'y.
2) Remove the 3 screws ' I ' holding the CD servo PCB .
3) Disconnect the CN 601,CN602 and CN605.
4) Remove the CD servo PCB.

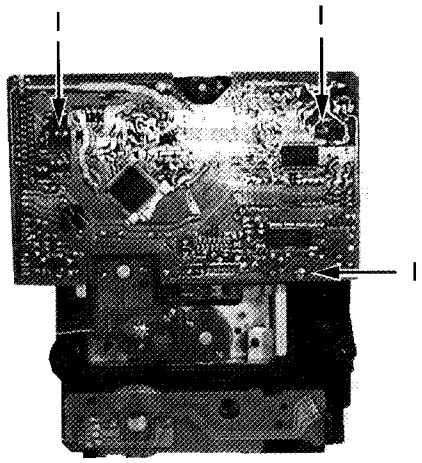


Fig.8

8. Front PCB Removal

1) Remove the top cover .
2) Remove the front panel ass'y .
3) Pull out the MIC knob and ECHO knob.
4) Remove 19 screws 'J ' holding the Front panel and Mic control PCB .
4) Remove the front PCB with the MIC PCB and ECHO PCB.

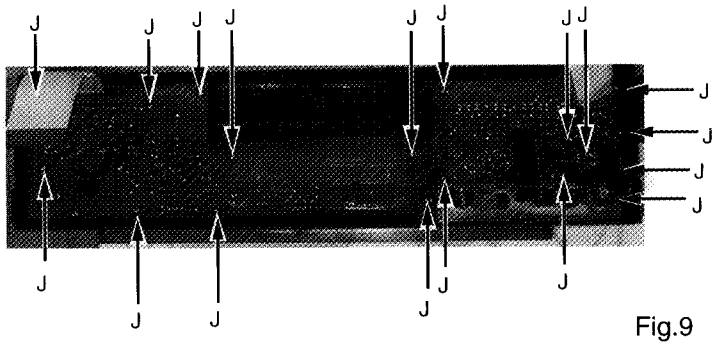


Fig.9

9. Installing CD mech. Tray

1) Insert the CD mech. Tray after checking that the traverse mech. is positioned slantingly.
2) If it is set horizontally ,press the cam plate until it stops so that the traverse mech.slants. (See an arrow in the following figure.)

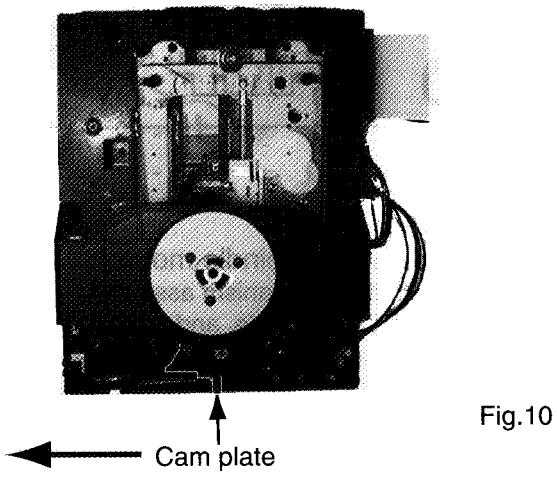
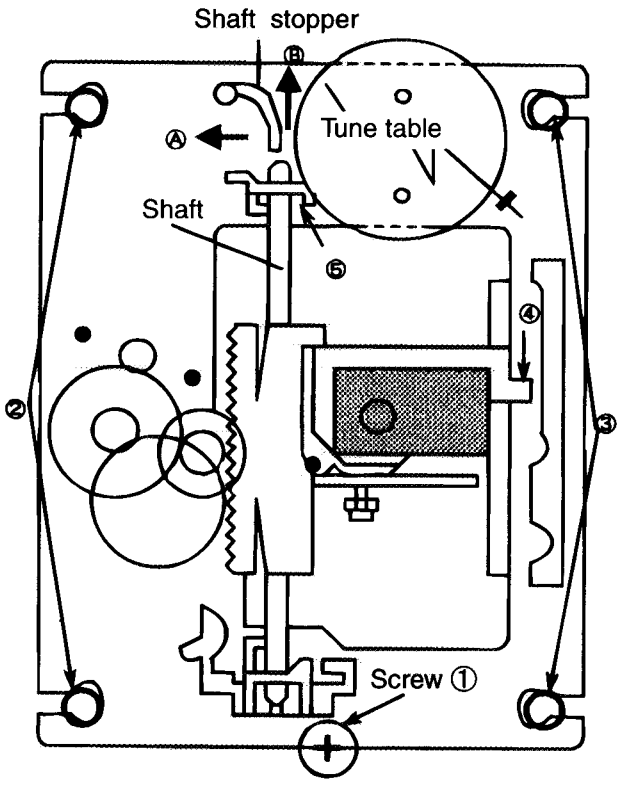


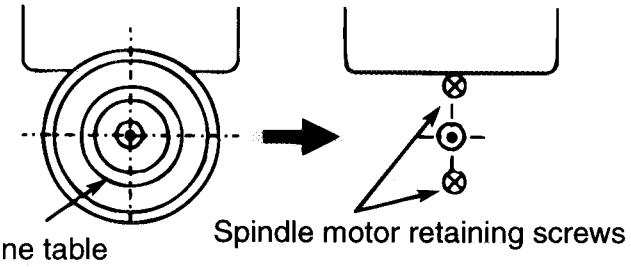
Fig.10

7. Removing the Laser Pickup
1) Remove the metal cover, tray assembly and the clamp.
2) Remove the screw ① from the Mecha Base assembly.
3) Remove the Mecha Base assembly from the rubber cushion ② and ③ .
4) Move the Shaft stopper from the rest position to the left side Ⓐ .
5) Remove the Pickup Shaft from the Mecha Base assembly.(Slide the Pickup shaft to the up side Ⓑ)
6) Remove the CD Pick Unit with the shaft.

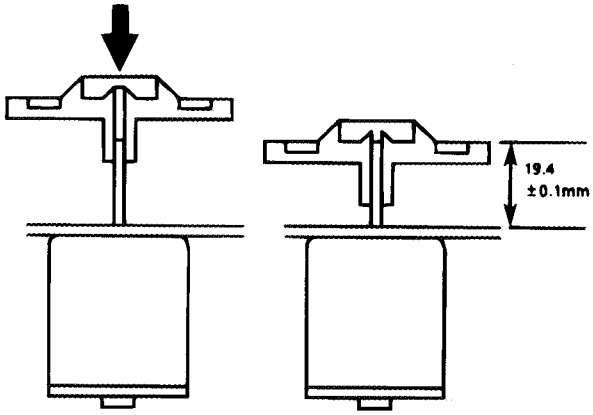
8. Installing the Laser Pickup
1) Connect the Flat wire with the connectors of APC (Automatic Power Control) P.C.Board.
2) While installing the ④ in the CD Support, set the shaft on the base hook ⑤ .
3) Install the Mecha Base assembly to the rubber cushion ② and ③ .



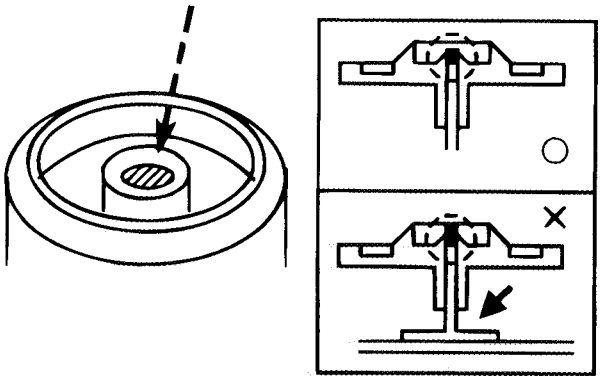
9. Removing the spindle motor
1) Remove the Mechanism assembly.
2) Remove the turntable, and remove the two screws retaining the spindle motor.
3) Remove the screw retaining the spindle and the Feed Motor P.C. Board and unsolder it.



10. Installing the spindle motor
1) Tighten the 2 screws to the same torque.
2) Fasten the Spindle and the Feed Motor P.C. Board with the screw and solder.
3) Install the turntable.When installing, press straight down at the center of the turntable until the distance from the surface of the mechanism base to the top of the turntable is exactly 19.4±0.1mm.



4) After insertion is complete, bond the motor shaft and turntable together (at the section marked by an arrow in the figure on the left below).

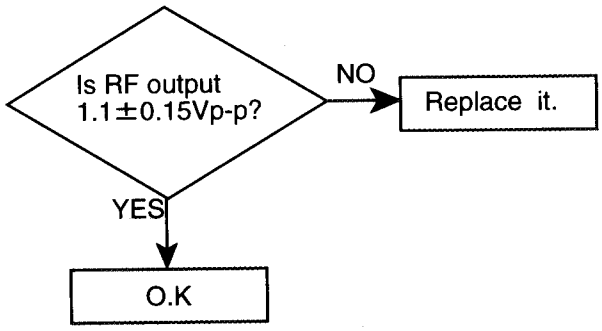


5) Use 'LOCKTITE' #460 bonding agent, and apply as little as possible. Take care not to allow any excess bonding agent to get onto the turntable. Be extremely careful not to allow bonding agent to adhere to the motor bearings (the section marked by an allow in the figure on the right).

Maintenance of Laser Pickup

(1) Cleaning the pick up lens
Befor you replace the pick up, please try to clean the lens with a alcohol soaked cotton swab.

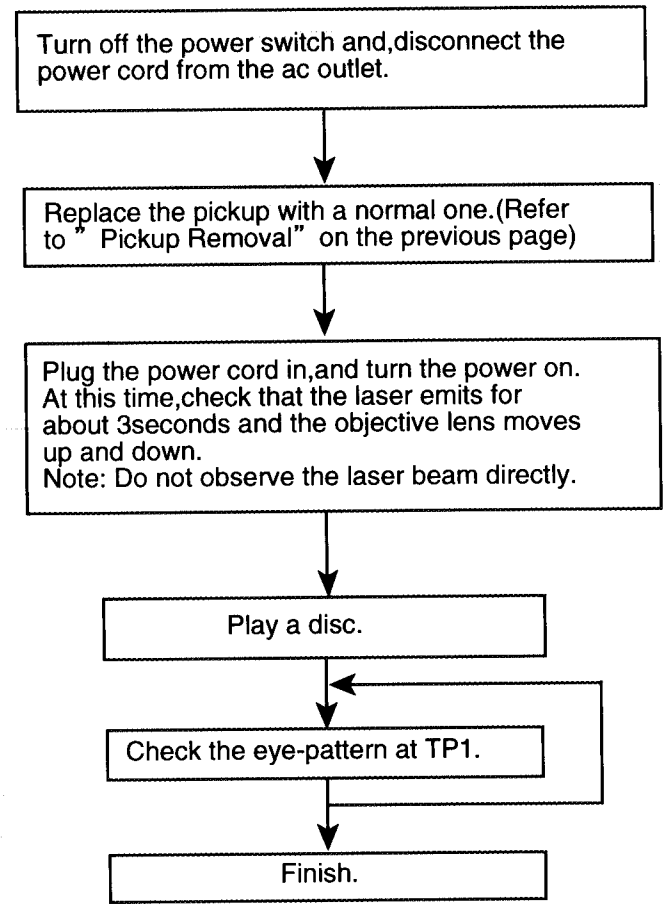
(2) Life of the laser diode (Fig.1)
When the life of the laser diode has expired, the following symptoms wil appear.
(1) The level of RF output (EFM output:amplitude of eye pattern) will be low.



(Fig.1)

(3) Semi-fixed resistor on the APC PC board
The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power.Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor.
If the laser power is lower than the specified value,the laser diode is almost worn out, and the laser pickup should be replaced.
If the semi-fixed resistor is adjusted while the pickup is functioning normally,the laser pickup may be damaged due to excessive current.

Replacement of Laser Pickup


Turn off the power switch and,disconnect the power cord from the ac outlet.
Replace the pickup with a normal one.(Refer to " Pickup Removal" on the previous page)
Plug the power cord in,and turn the power on. At this time,check that the laser emits for about 3seconds and the objective lens moves up and down.
Note: Do not observe the laser beam directly.
Play a disc.
Check the eye-pattern at TP1.
Finish.

Flow of Functional Operation Until TOC Read

Power ON → Power Key → Slider turns REST SW ON.

Check Point: Check that the voltage at the pin3 of CN607 is 0V (a moment)?

Automatic tuning of TE offset

Laser ON → Check that the voltage at the pin3 of IC601 + side is + 5V?

Detectionof disc

Automatic tuning of Foucus offset

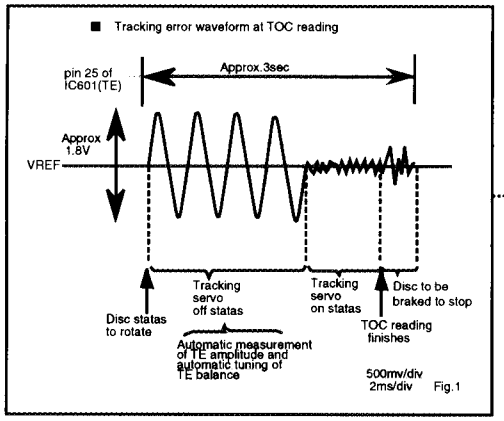
Automatic measurement of Foucus A-curve amplitude → Confirm that the Focus error S-cuve siganl at the pin27 of IC601 is approx.2Vp-p

Disc is rotated → Confirm that the siganl from pin24 IC603 is 0V as a accelerated pulse during approx.400ms.

Focus servo ON (Tracking servo ON)

Automatic measurement of Tracking error amplitude → Confirm the waveform of the Tracking error signal at the pin25 of IC601 (R612) (See fig-1)

Automatic tuning of Tracking error balance



Automatic tuning of Focus error balance

Automatic tuning of Focus error gain

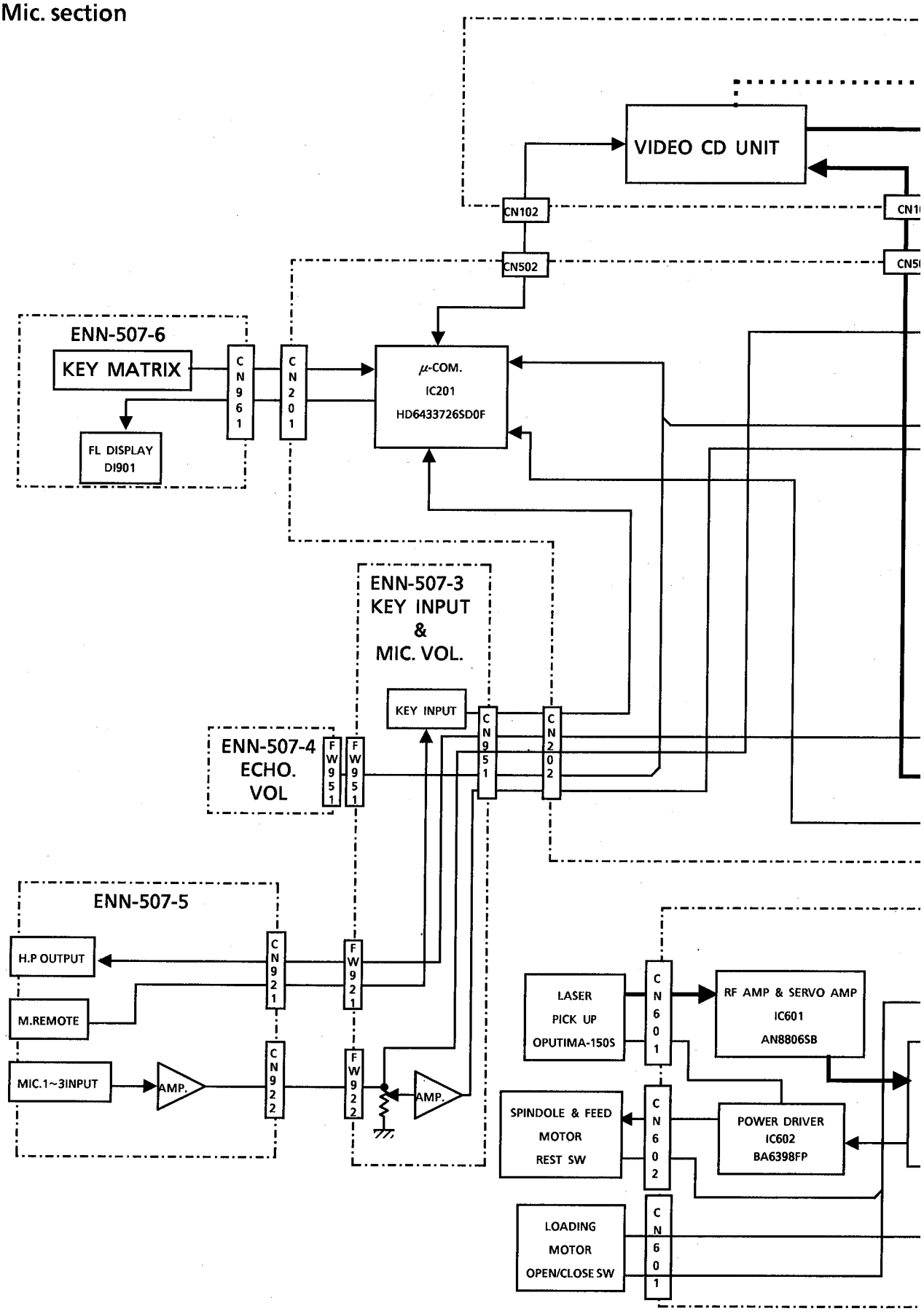
Automatic tuning of Tracking error gain

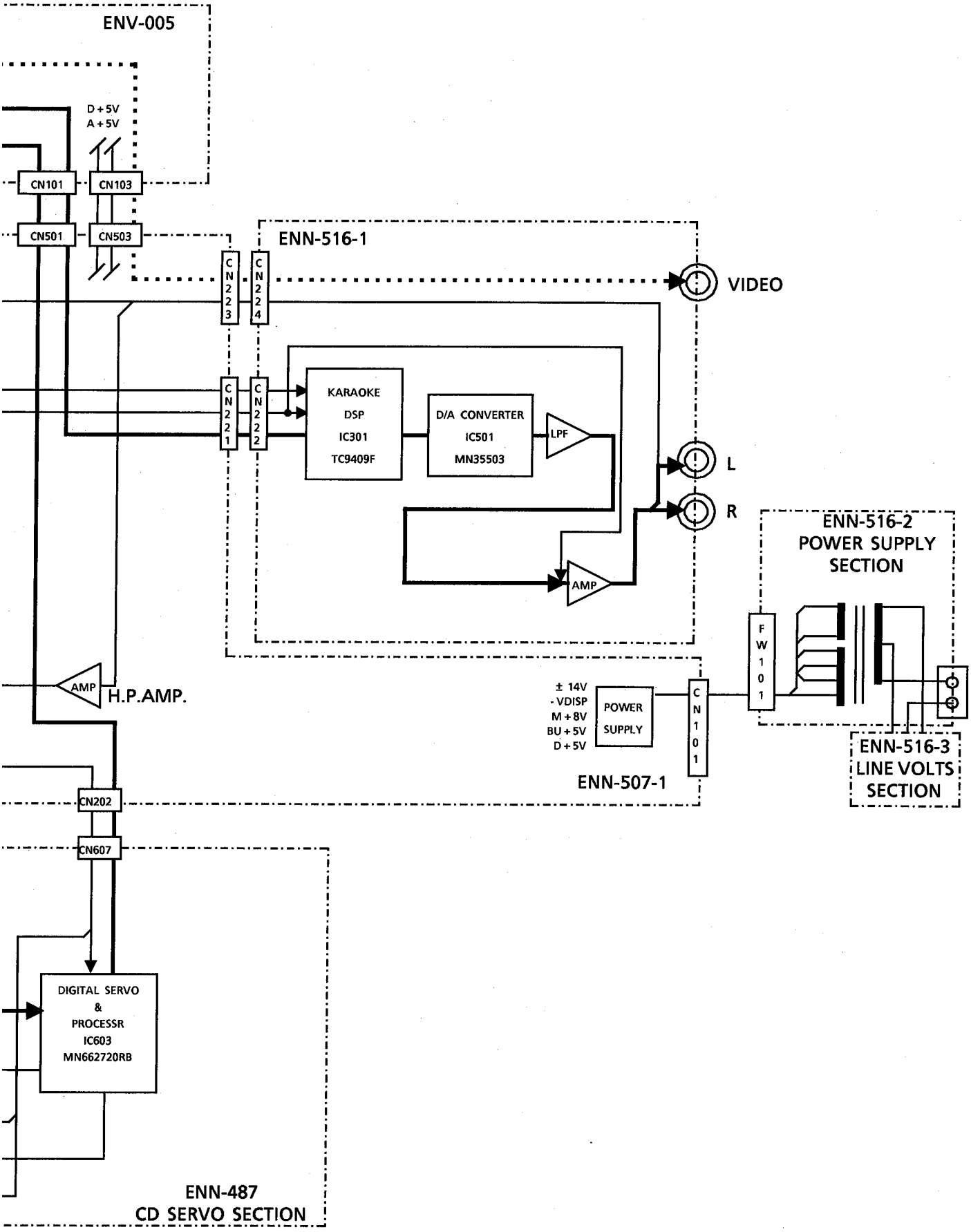
TOC reading → Confirm the eys-pattern at the lead of TP1

Play a disc

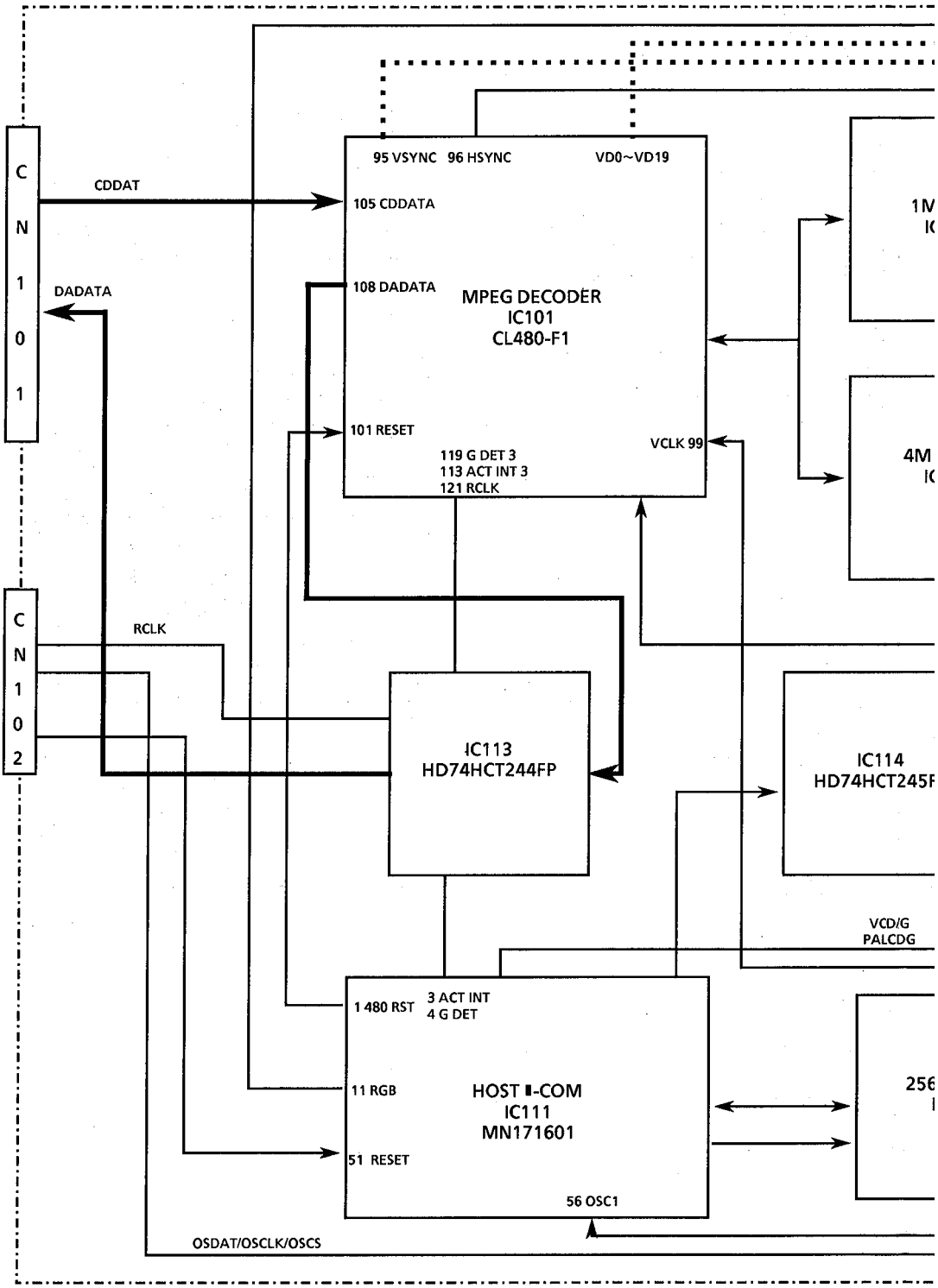
Block Diagrams

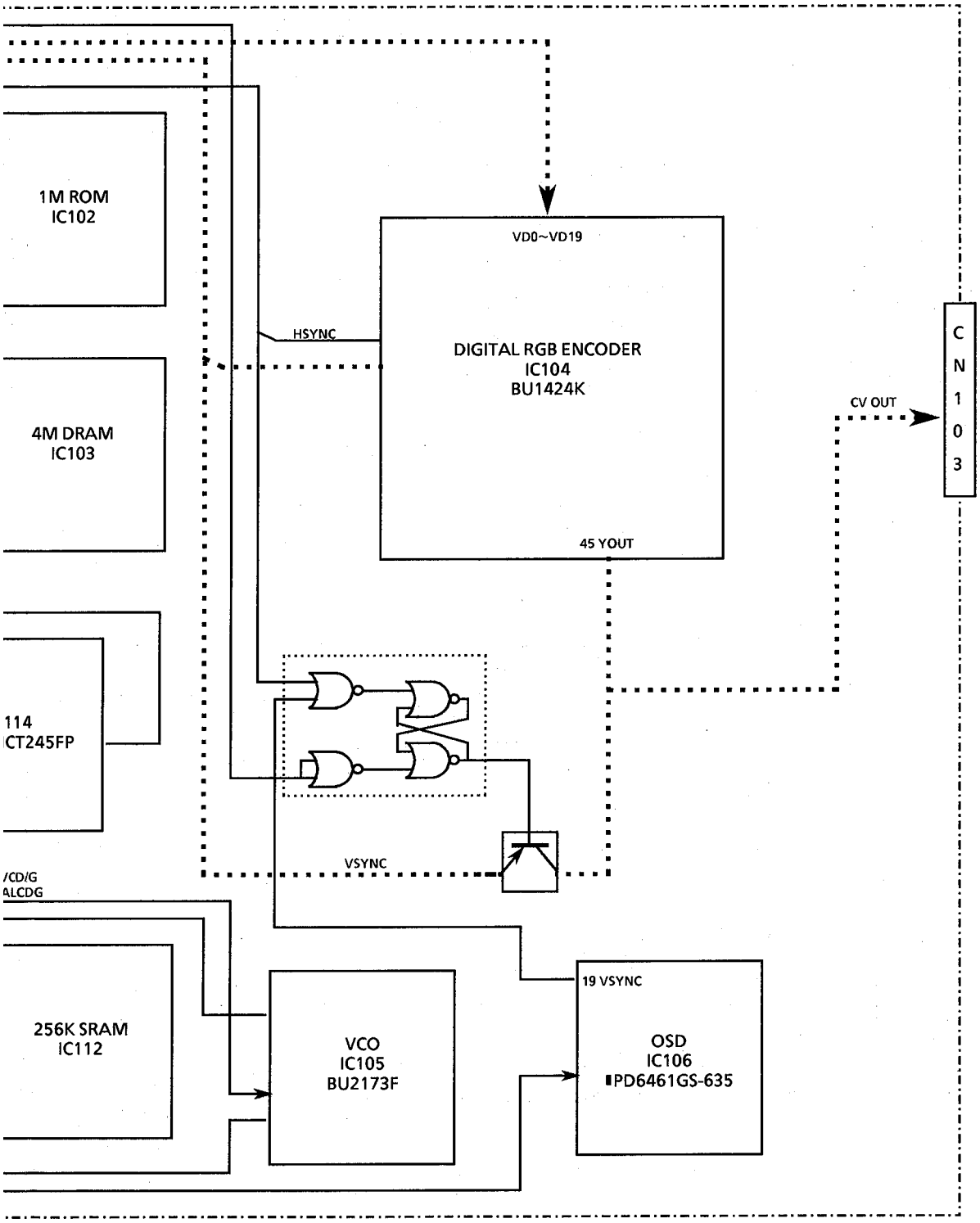
(1) Main & Mic. section



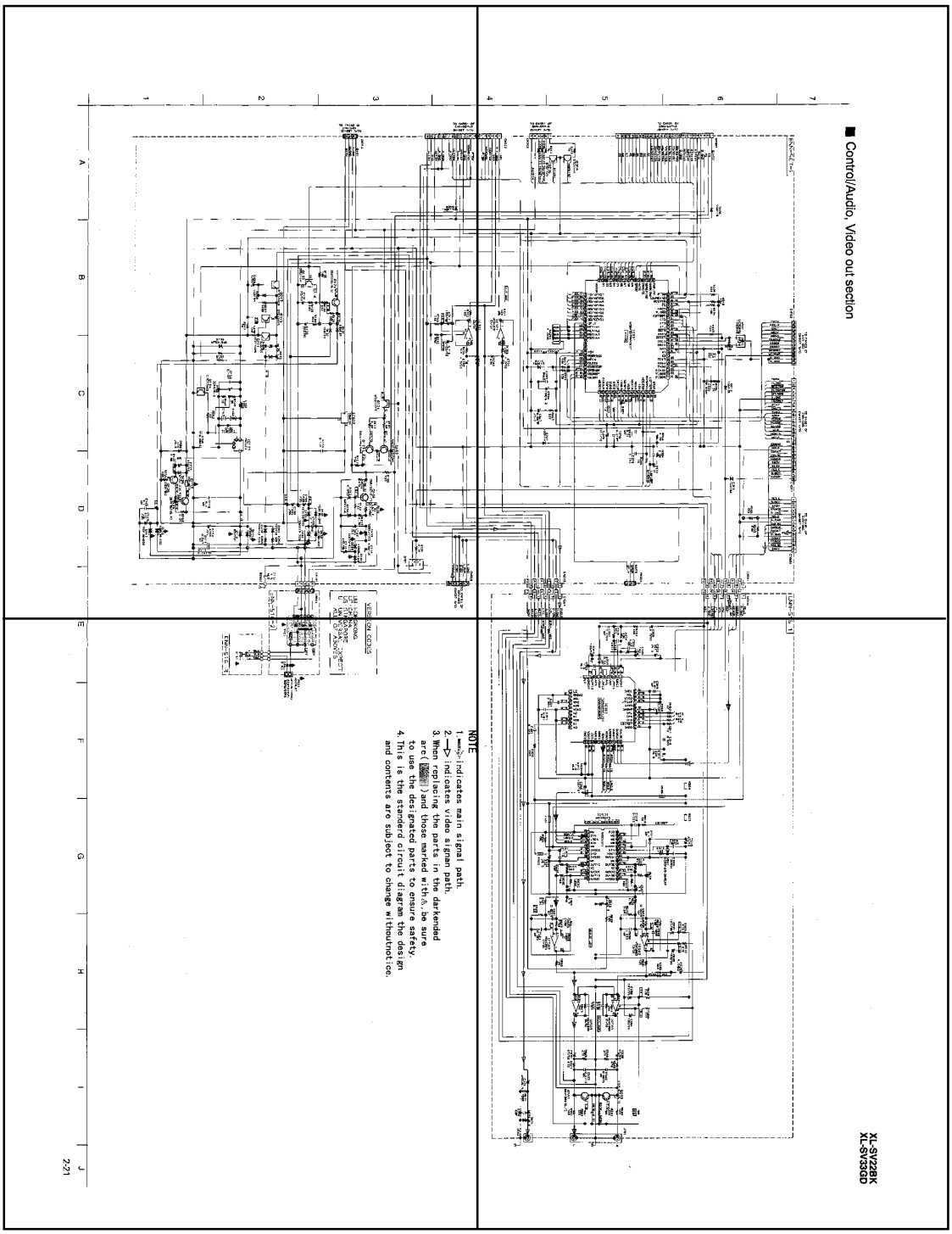

ENV-005
D+5V
A+5V
CN101
CN103
CN501
CN503
ENN-516-1
CN223
CN224
VIDEO
CN221
CN222
KARAOKE
DSP
IC301
TC9409F
D/A CONVERTER
IC501
MN35503
LPF
L
R
AMP
ENN-516-2
POWER SUPPLY
SECTION
AMP
H.P.AMP.
± 14V
-VDISP
M+8V
BU+5V
D+5V
POWER
SUPPLY
CN101
FW101
ENN-507-1
ENN-516-3
LINE VOLTS
SECTION
CN202
CN607
DIGITAL SERVO
&
PROCESSR
IC603
MN662720RB
ENN-487
CD SERVO SECTION

(2) Video CD Section

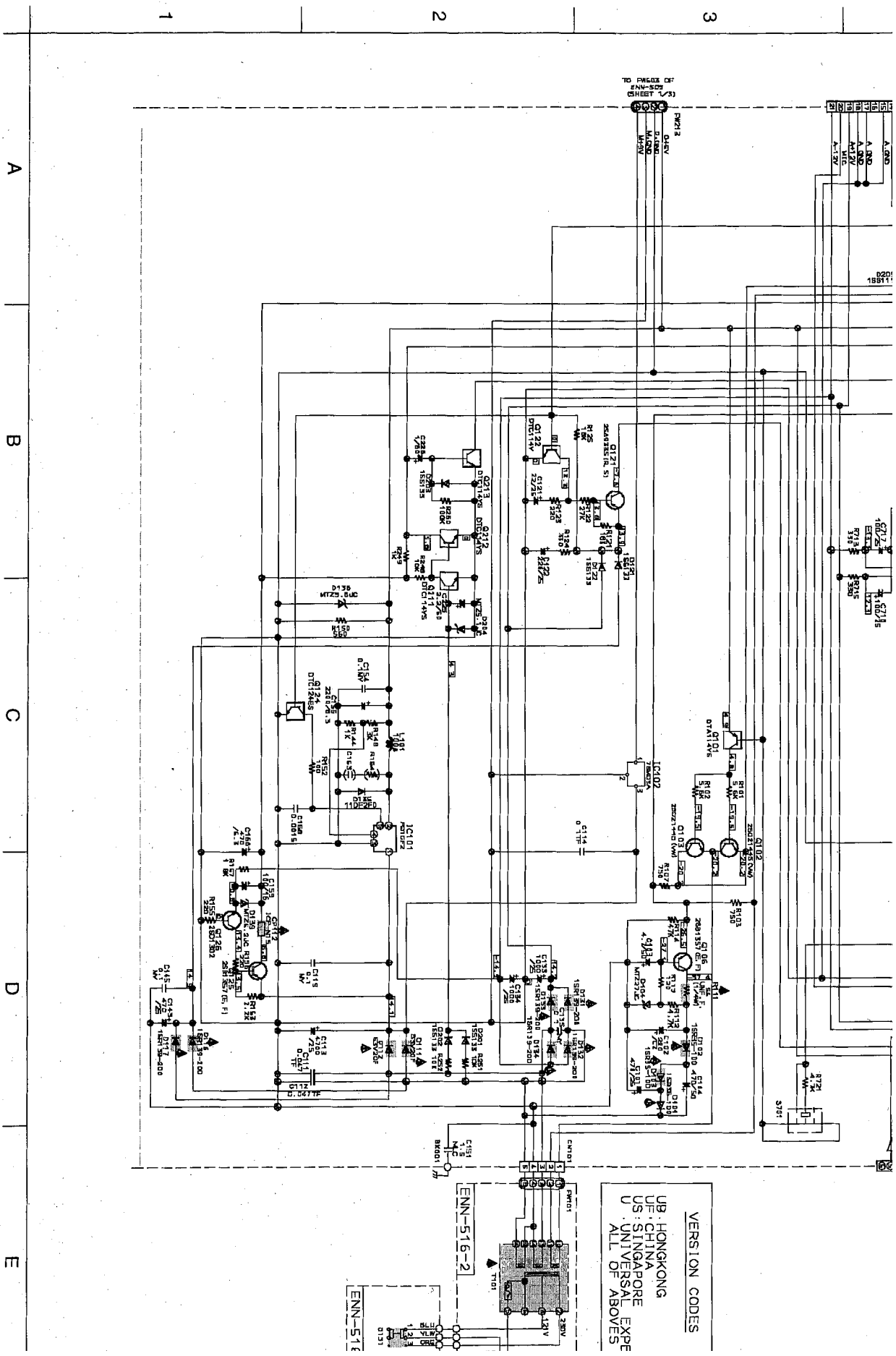



1M ROM
IC102
4M DRAM
IC103
114
CT245FP
/CD/G
ALCDG
256K SRAM
IC112
VD0~VD19
HSYNC
DIGITAL RGB ENCODER
IC104
BU1424K
45 YOUT
CV OUT
C
N
1
0
3
VSYNC
VCO
IC105
BU2173F
19 VSYNC
OSD
IC106
PD6461GS-635

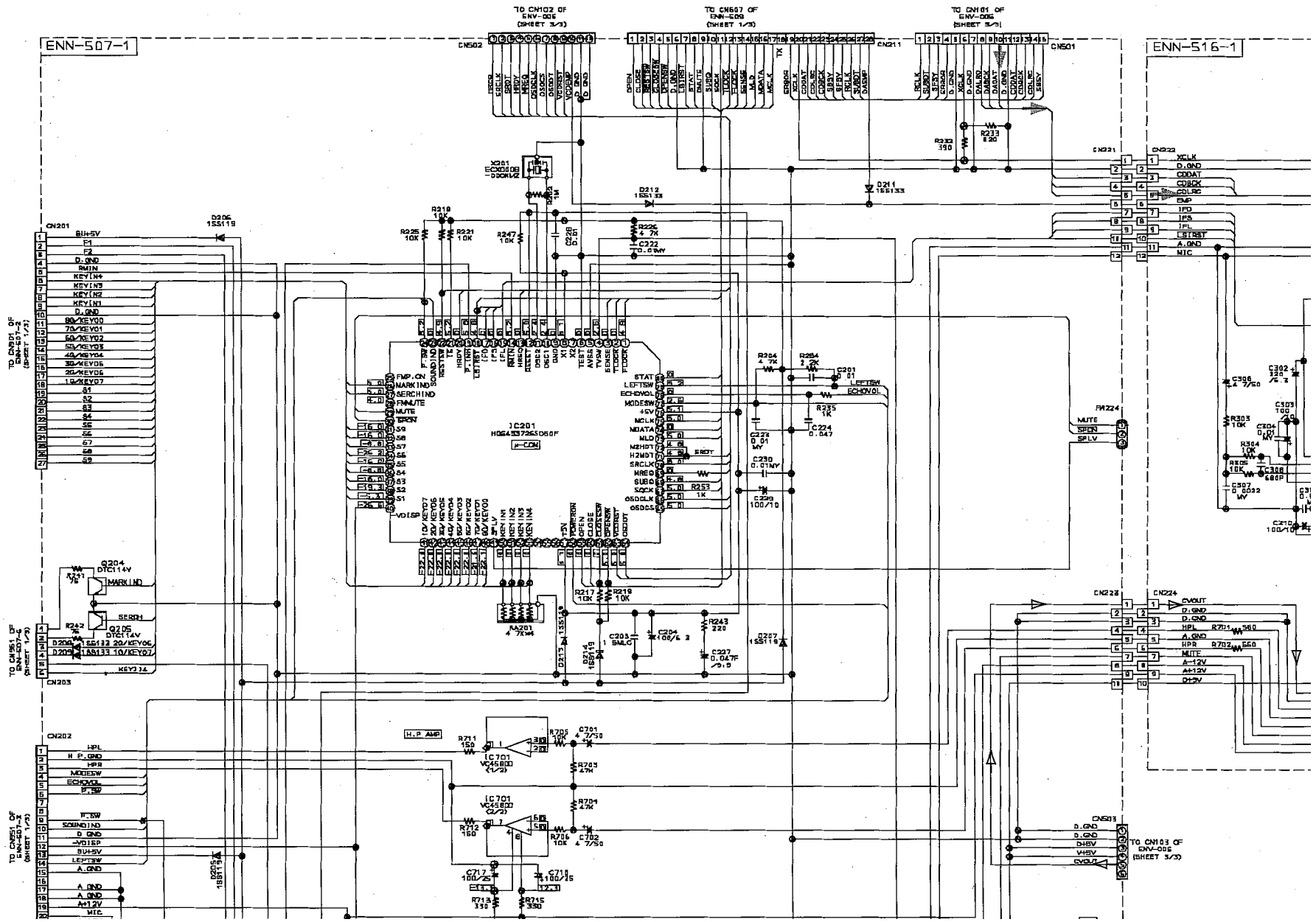
P2-21-a P2-21-b


■ Control/Audio, Video out section
XL-SV228K
XL-SV336B
NOTE
1. ——>: indicates main signal path.
2. ——>: indicates video signal path.
3. When replacing the parts marked with ⚠, be sure to use the designated parts to ensure safety.
4. This is the standard circuit diagram the design and contents are subject to change without notice.
2-21

P2-21-c P2-21-d


VERSION CODES
UB : HONGKONG
UF : CHINA
US : SINGAPORE
U : UNIVERSAL EXPE
ALL OF ABOVES
ENN-516-2

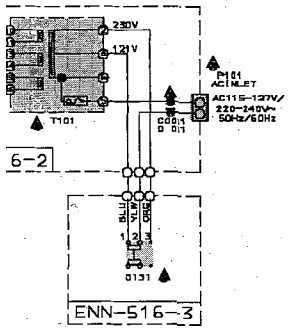
■ Control/Audio, Video out section

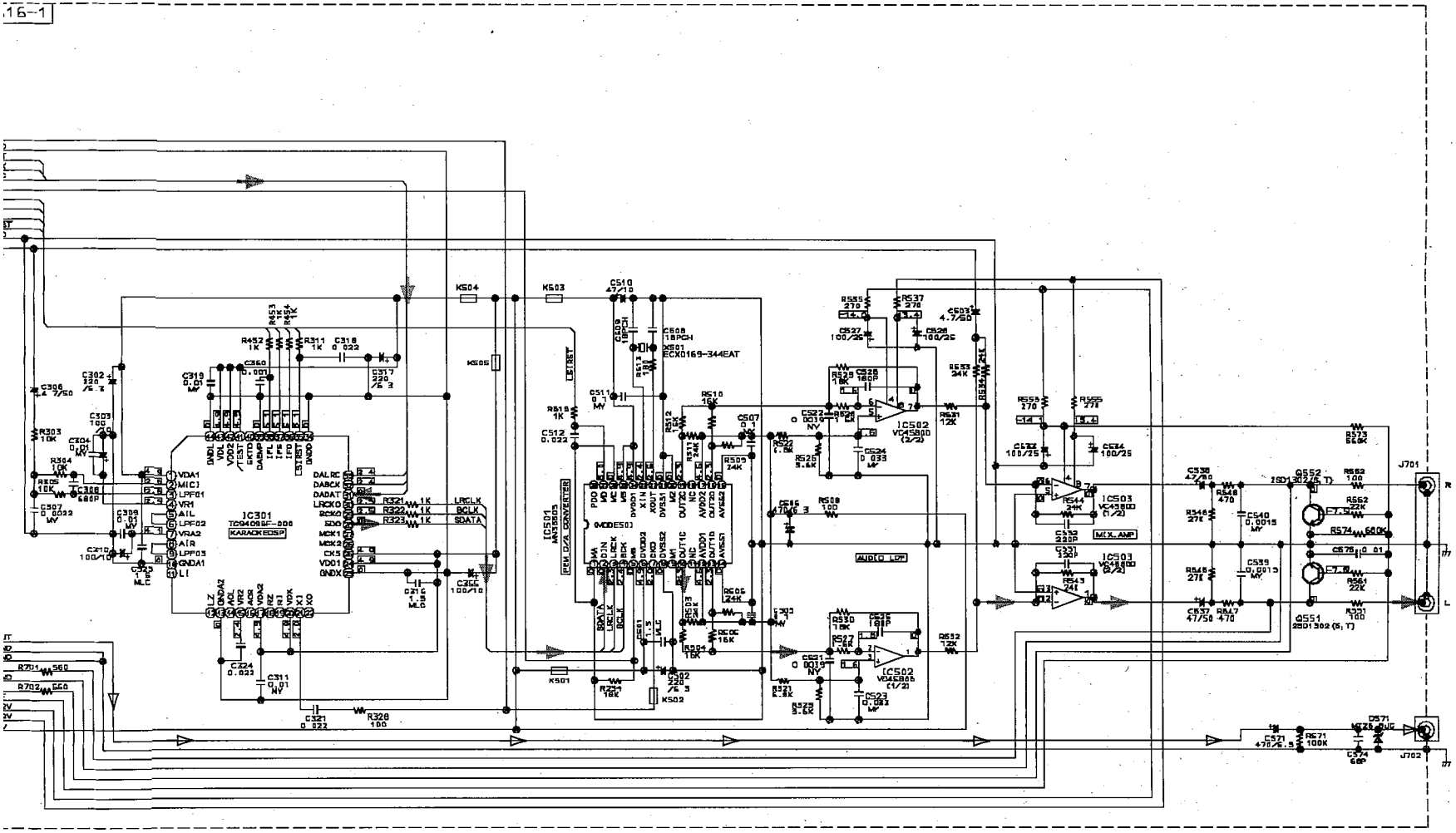


2. ⟶▷ indicates video signan path.
3. When replacing the parts in the darkended are (▒▒▒) and those marked with ⚠, be sure to use the designated parts to ensure safety.
4. This is the standerd circuit diagram the design and contents are subject to change withoutnotice.

SION CODES

NGKONG
INA
NGAPORE
IVERSAL EXPECT
L OF ABOVES

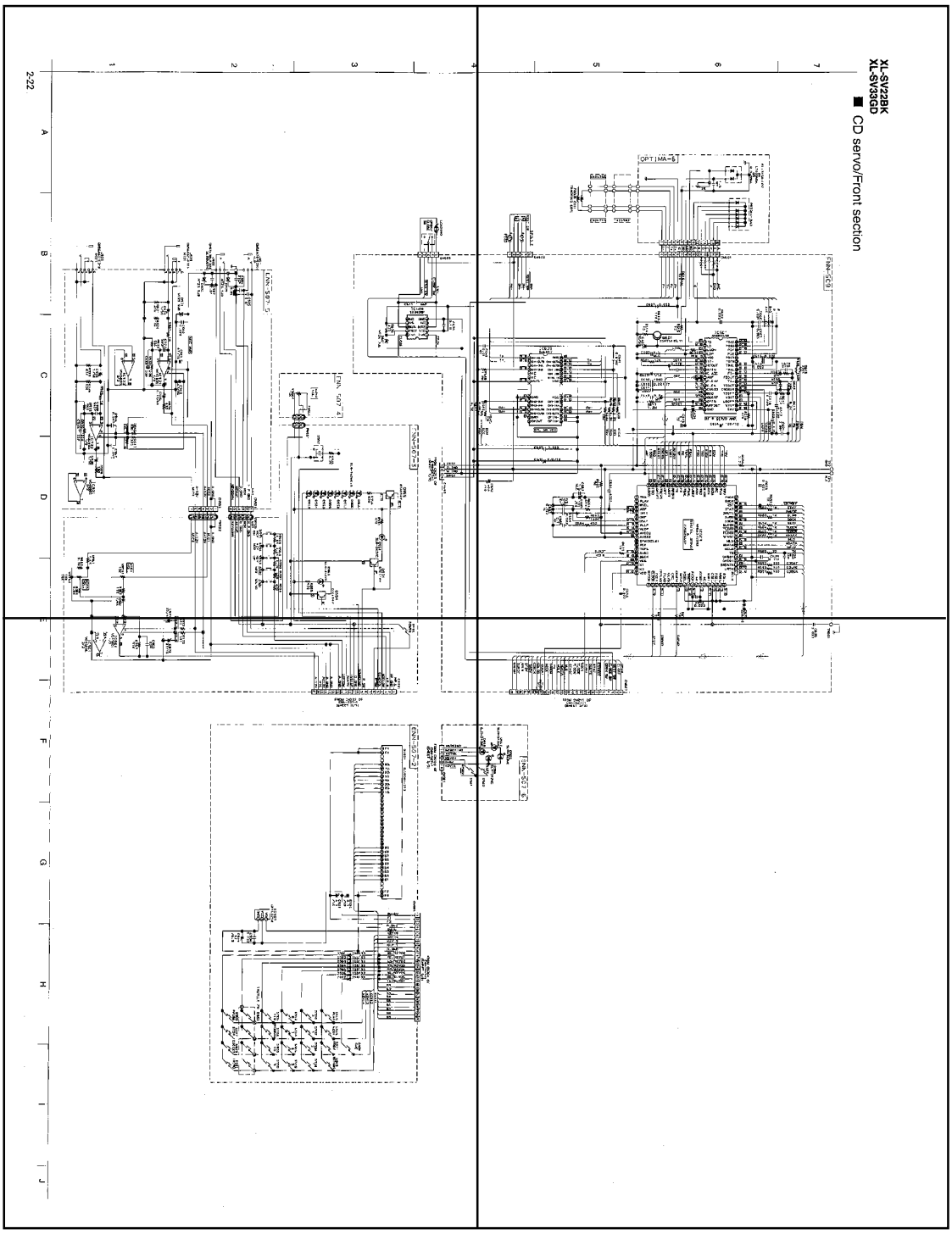




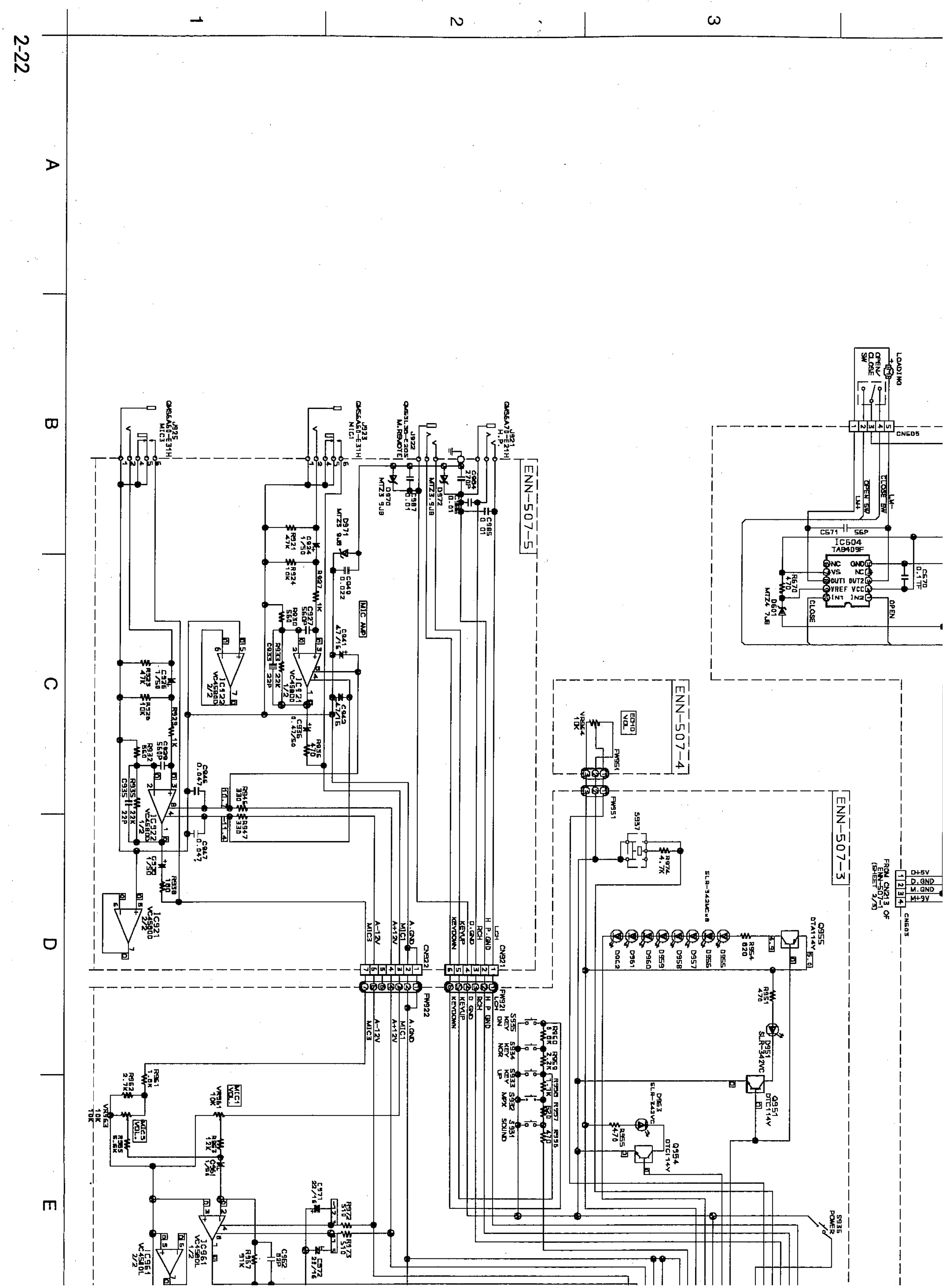
NOTE

1. ⟹ indicates main signal path.
2. ⟶ indicates video signan path.
3. When replacing the parts in the darkended

P2-22-a P2-22-b

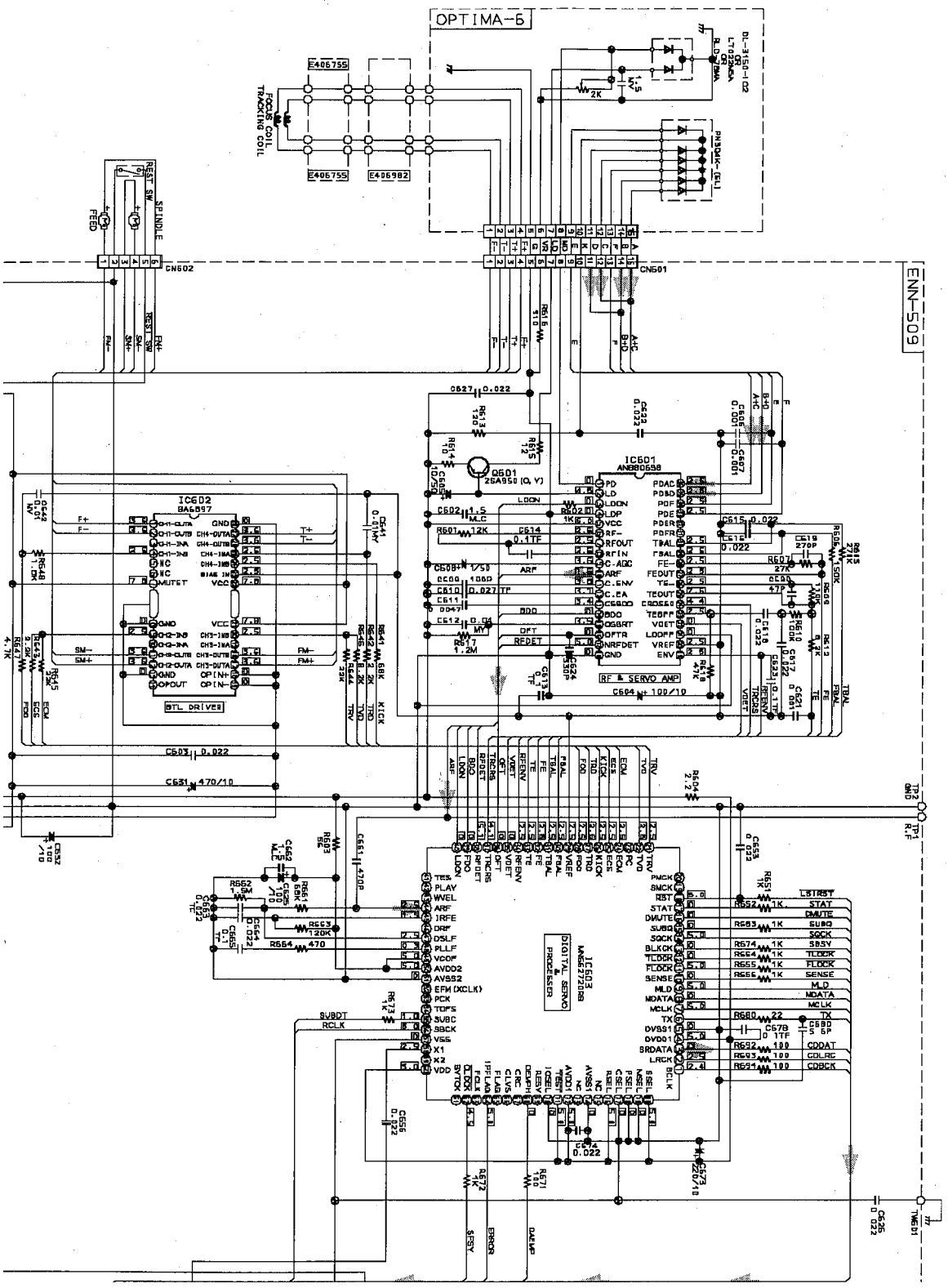


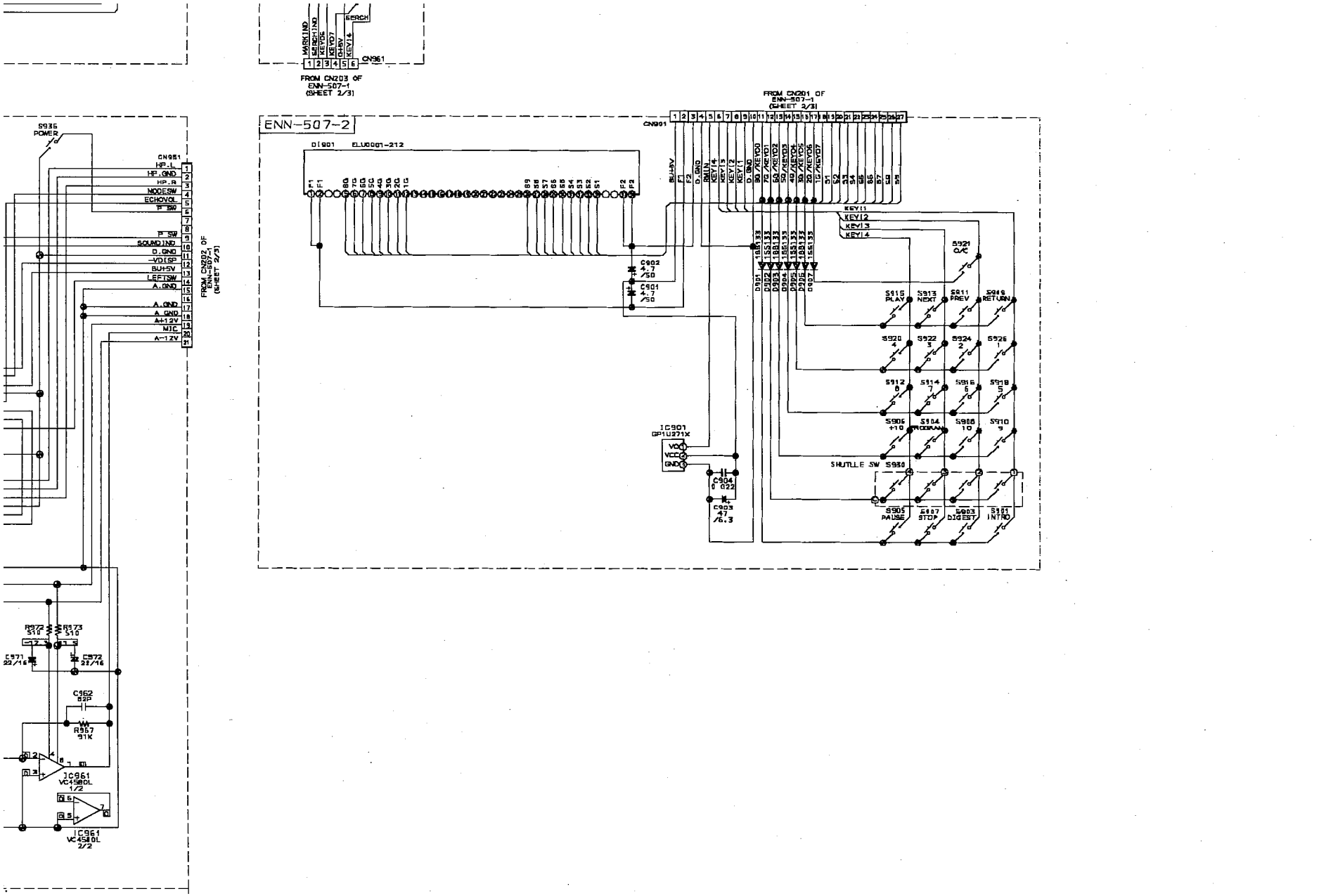
P2-22-c P2-22-d


2-22
ENN-507-5
ENN-507-4
ENN-507-3
MIC AMP
IC604
TA8409F
CN605
CN603
FROM CN213 OF ENN-507-1 (SHEET 2/3)
D+5V
D.GND
M.GND
M+9V
LOADING
OPEN/CLOSE SW
ECHO VOL.
MIC1 VOL.
MIC3 VOL.
CN921
CN922
FW921
FW922
FW951
FW954
J921
H.P.
J922
M.REMOTE
J923
MIC1
J925
MIC3
IC921
IC922
IC961
Q951
Q954
Q955
S931 SOUND
S932 MPX
S933 KEY UP
S934 KEY NOR
S935 KEY DN
S936 POWER
S937

■ CD servo/Front section

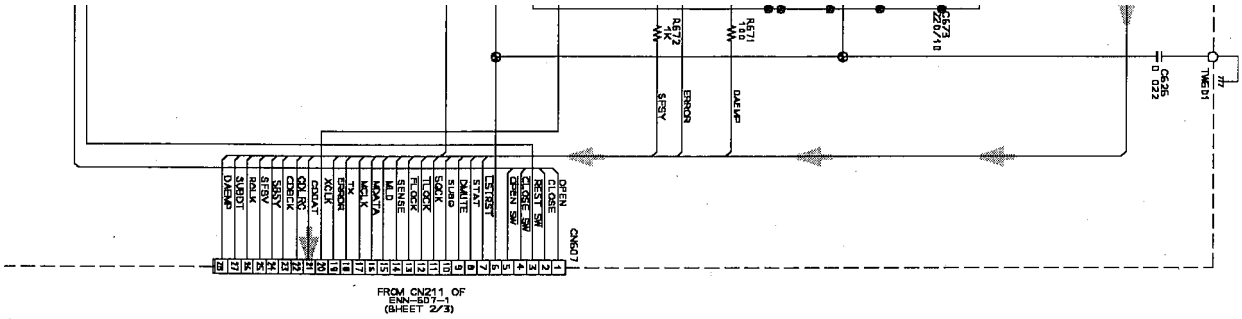
P2-22-a

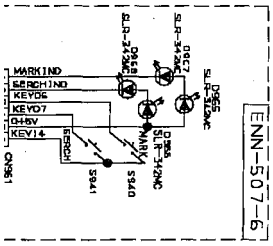




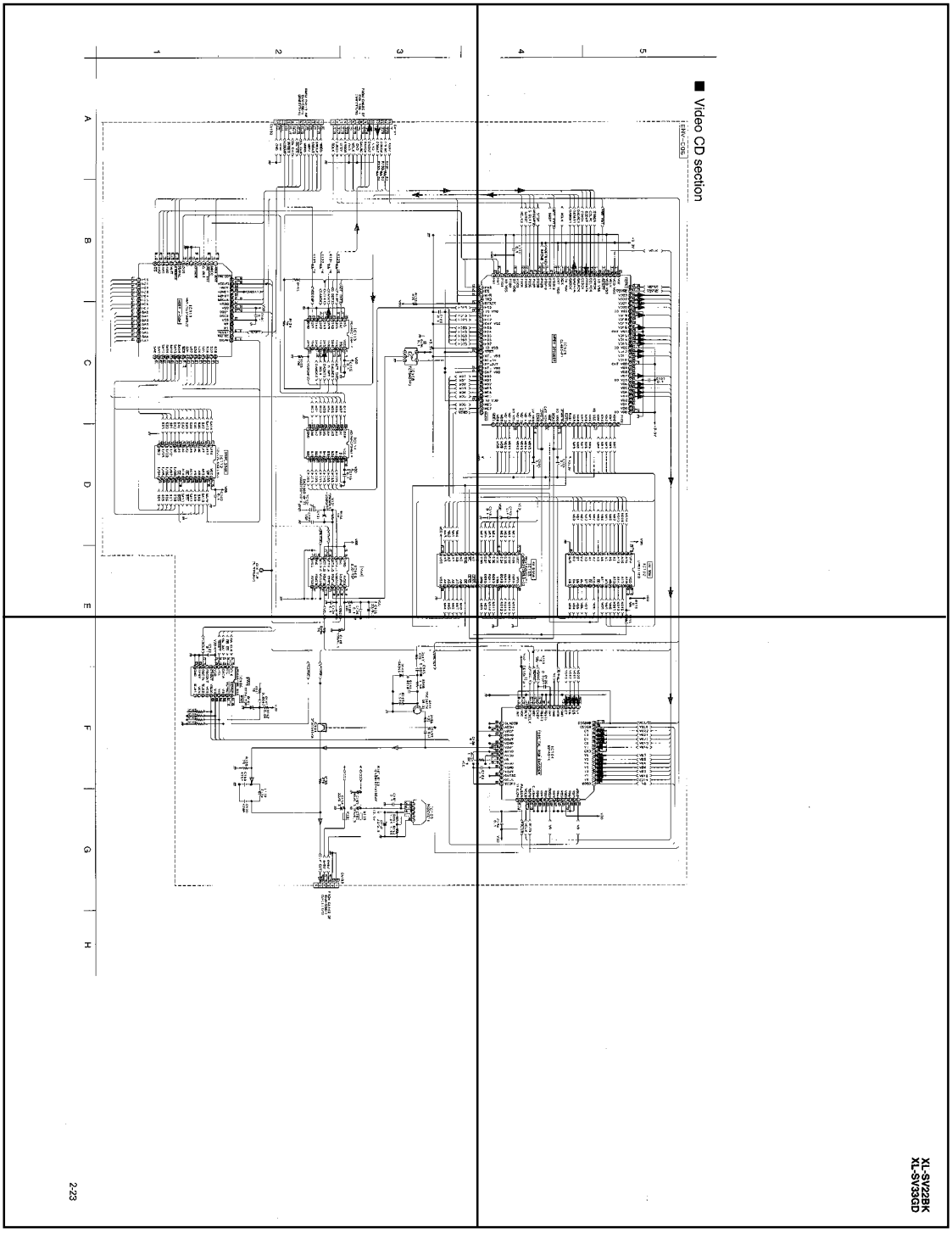
E F G H I J

P2-22-c

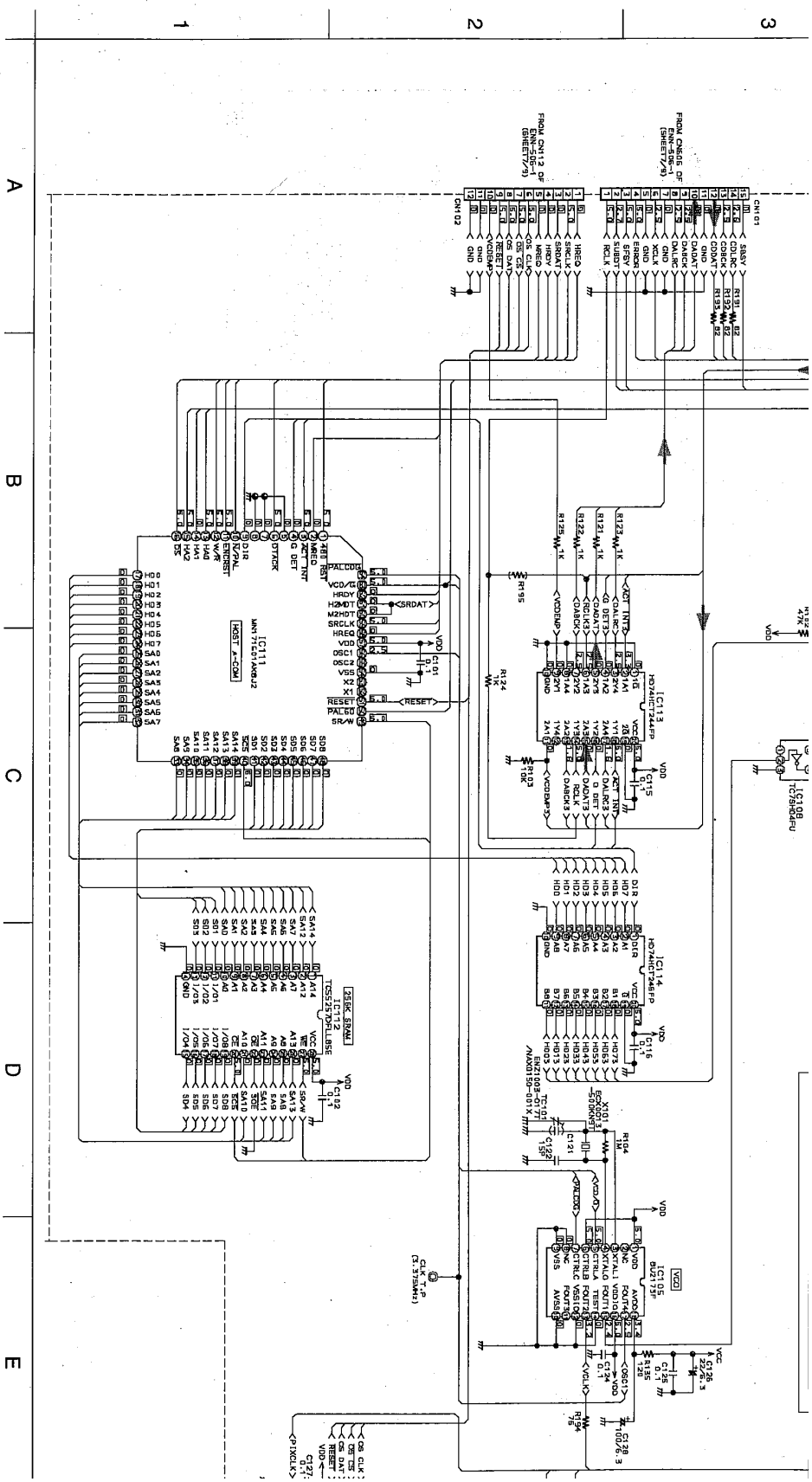

R671
10
W
R672
W
C673
220/10
C635
0.022
TMED1
SFSV
ERROR
DAEMP
CN607
OPEN
CLOSE
RESET SW
CLOSE SW
OPEN SW
LSTRST
STAT
DMUTE
SUBQ
SOCK
FLOCK
TLOCK
SENSE
MLD
MDATA
MCLK
TX
ERROR
XCLK
DSLAT
CRCK
SSFSV
SFDV
RDLK
SUBDT
DAEMP
FROM CN211 OF
ENN-507-1
(SHEET 2/3)


MARKIND
SEARCHIND
KEY06
KEY07
+5V
KEY14
CN361
SEARCH
MARK
SS41
SS40
D566
SLR-342MC
D567
SLR-342MC
D568
SLR-342MC
ENN-507-6

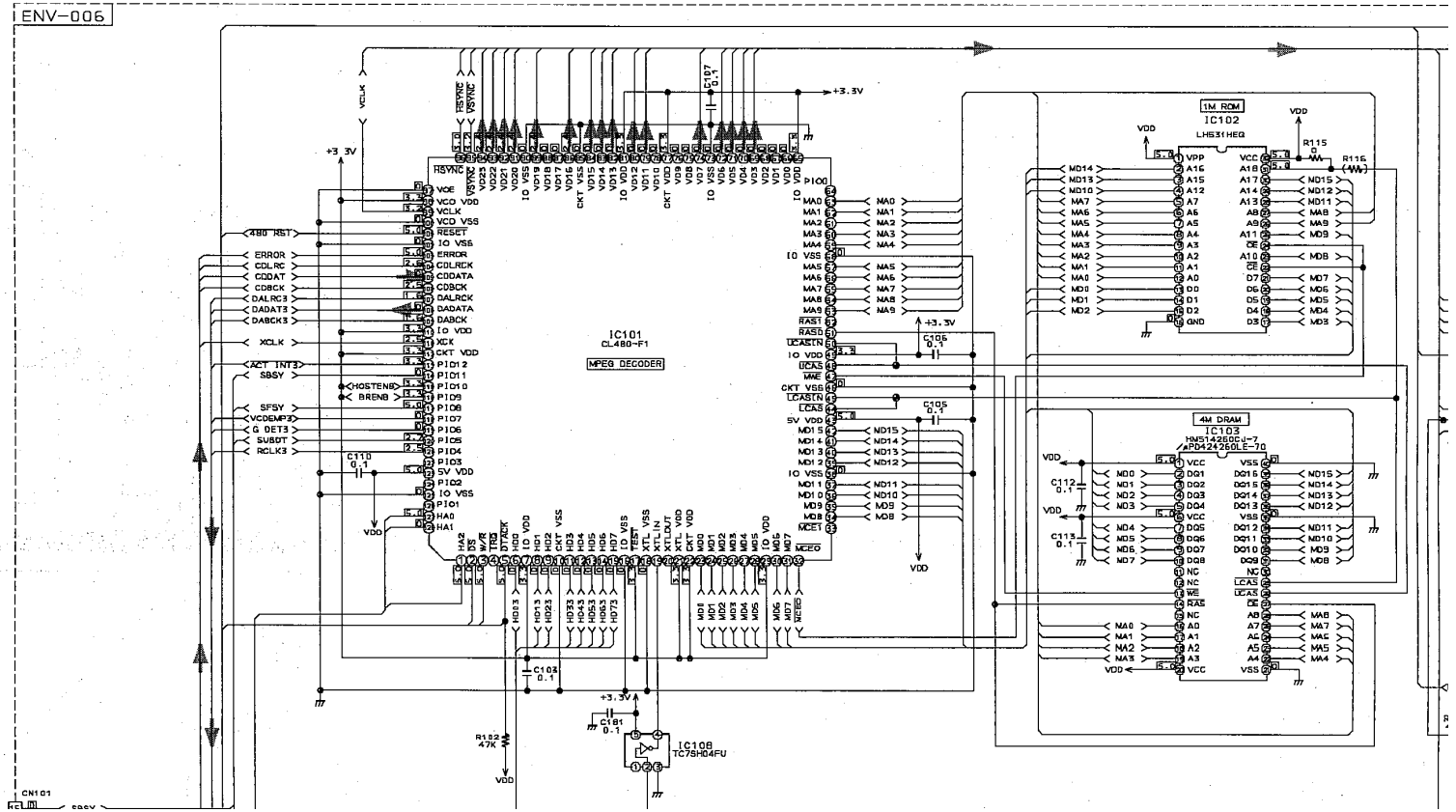
P2-23-a P2-23-b

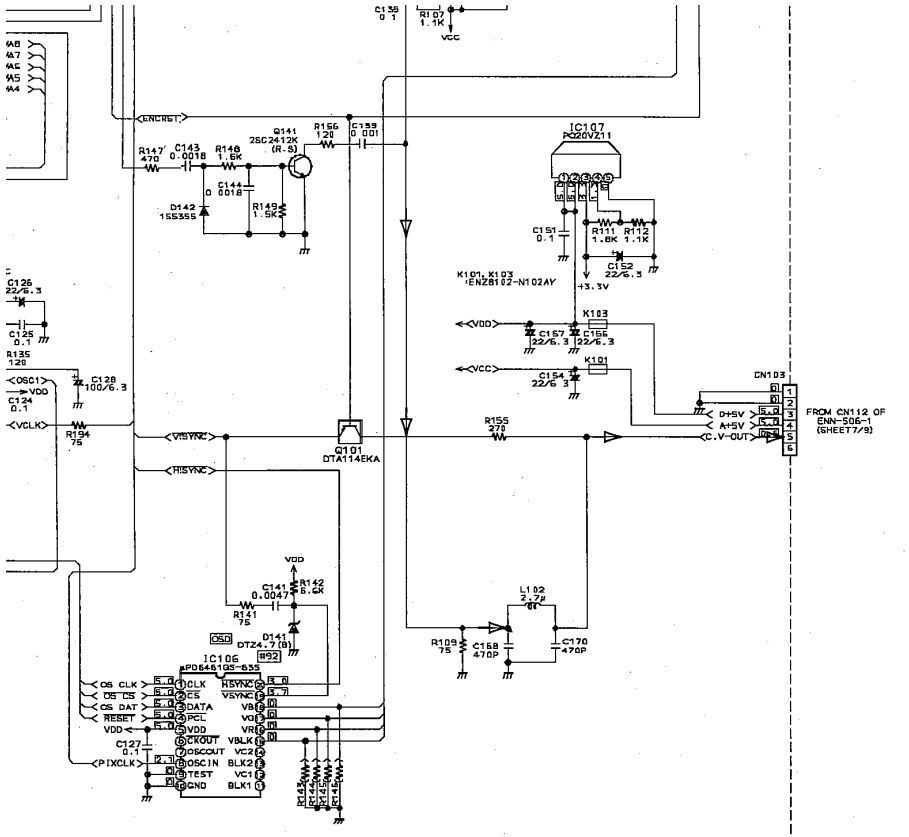


P2-23-c P2-23-d



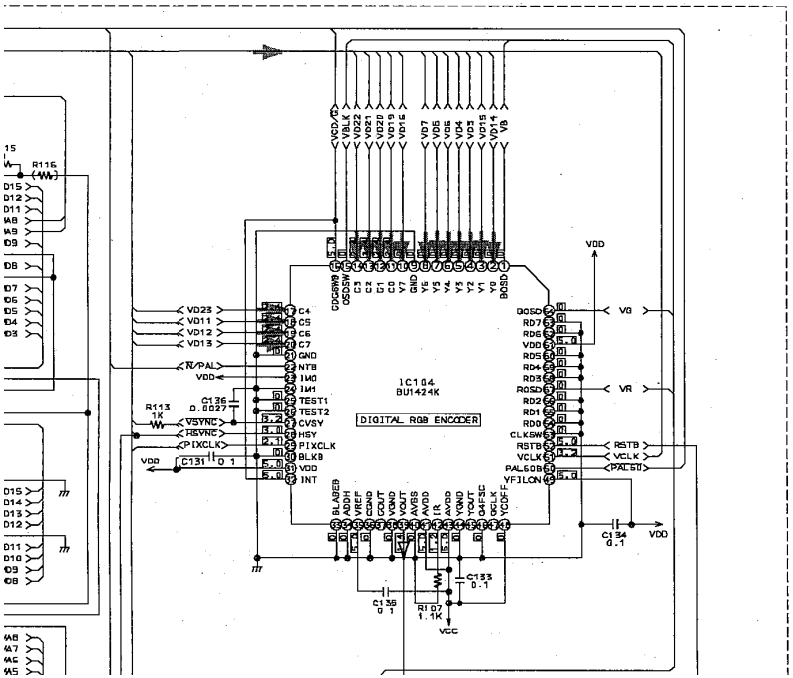
■ Video CD section



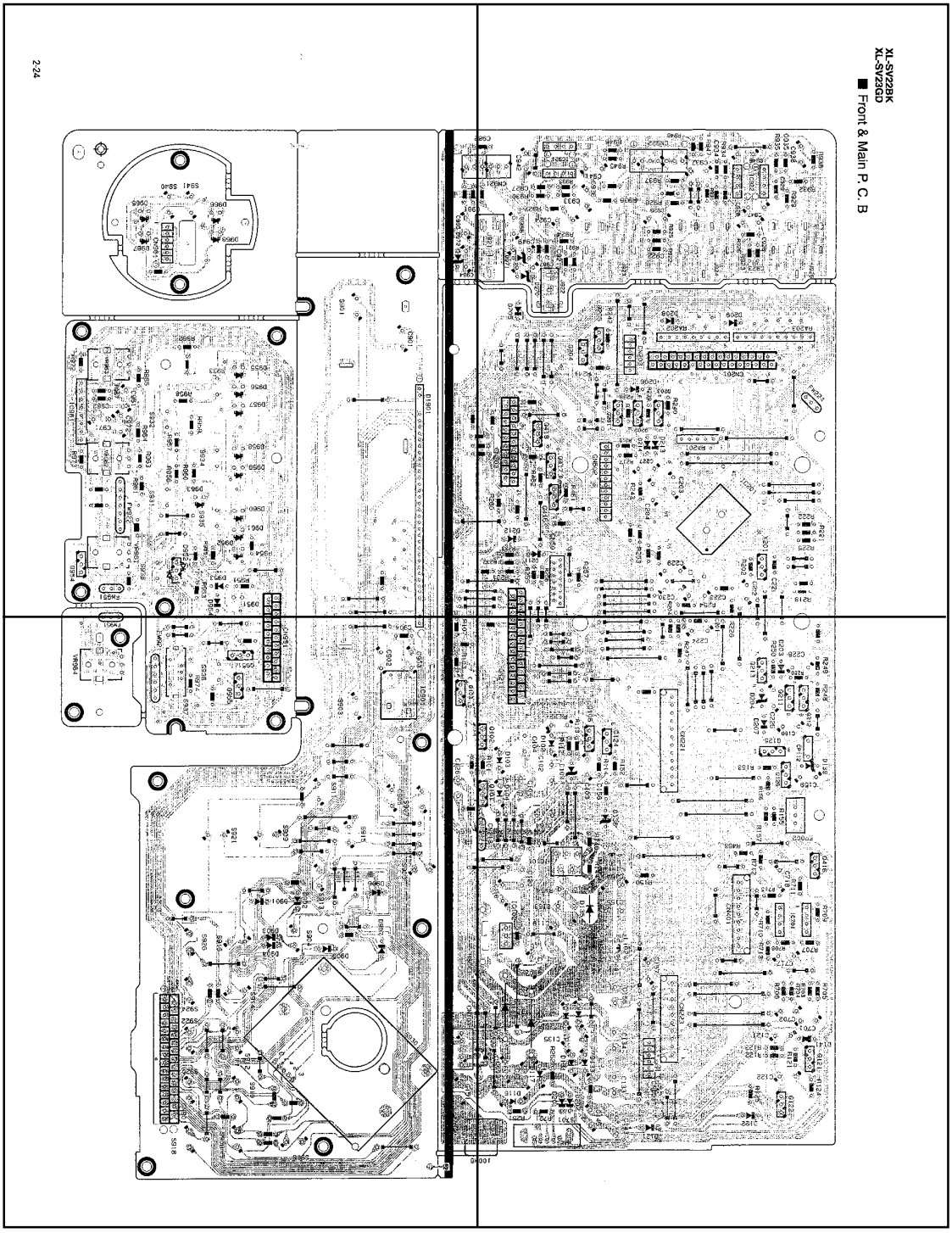

C136 0.1
R107 1.1K
VCC
ENCRST
Q141 2SC2412K (R,S)
R147 470
C143 0.0018
R148 1.8K
C144 0.0018
D142 1SS355
R149 1.5K
R156 120
C159 0.001
IC107 PQ20VZ11
C151 0.1
R111 1.8K
R112 1.1K
C152 22/6.3
+3.3V
K101, K103 ENZ81D2-N102AY
K103
K101
C157 22/6.3
C156 22/6.3
C154 22/6.3
VDD
VCC
CN103
D+5V
A+5V
C.V-OUT
FROM CN112 OF ENN-506-1 (SHEET7/9)
C126 22/6.3
C125 0.1
R135 120
OSC1
C128 100/6.3
C124 0.1
VCLK
R194 75
VBSYNC
HSYNC
R155 270
Q101 DTA114EKA
VDD
C141 0.0047
R142 6.8K
R141 75
OSD
D141 DTZ4.7(B)
#92
L102 2.7μ
R109 75
C158 470P
C170 470P
IC106 μPD6461GS-655
OS CLK
OS CS
OS DAT
RESET
VDD
C127 0.1
PIXCLK
CLK
CS
DATA
PCL
VDD
CKOUT
OSCIN
TEST
GND
HSYNC
VSYNC
VB
VG
VR
VBLK
VC2
BLK2
VC1
BLK1
R143
R144
R145
R146

E | F | G | H

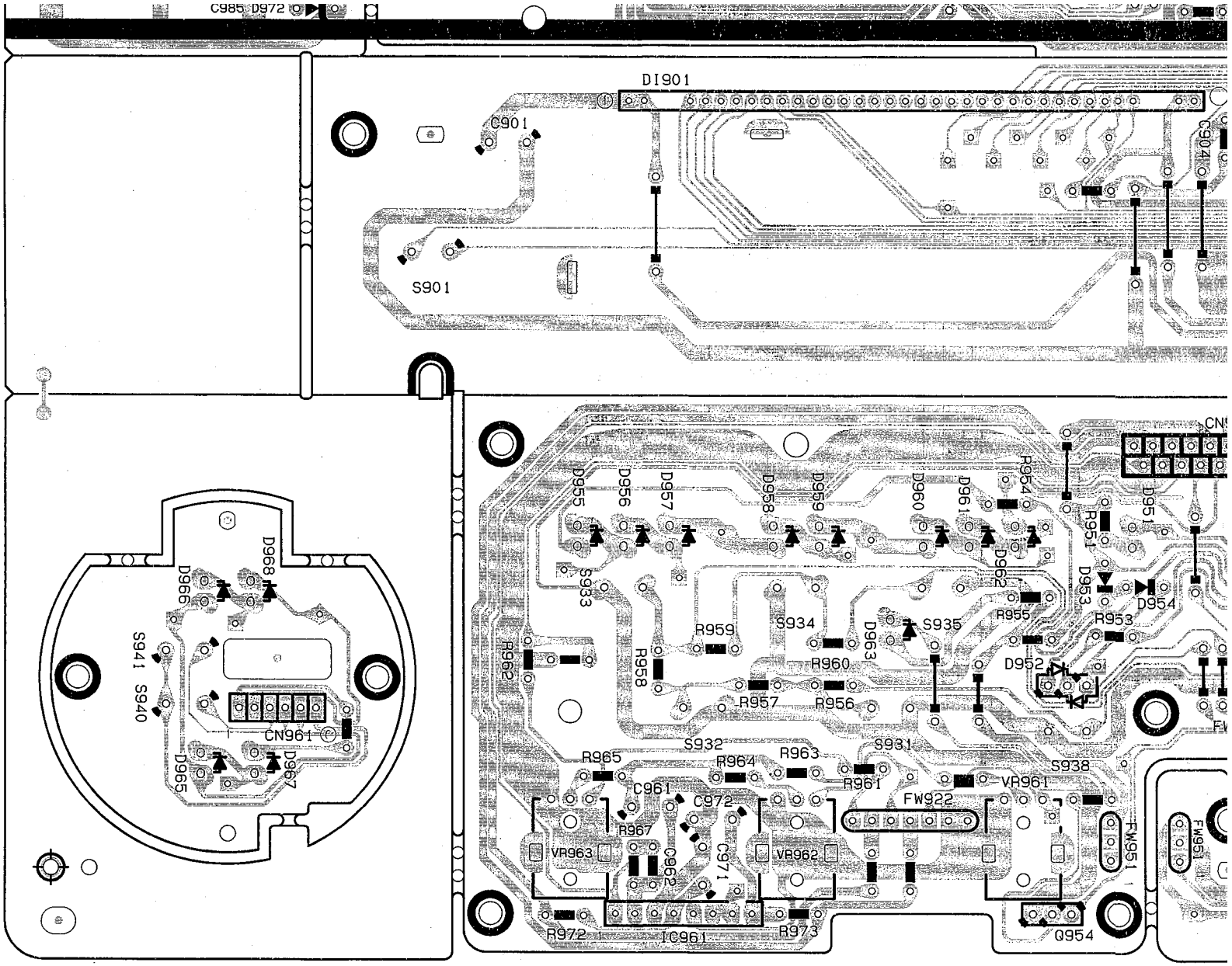
XL-SV22BK
XL-SV33GD



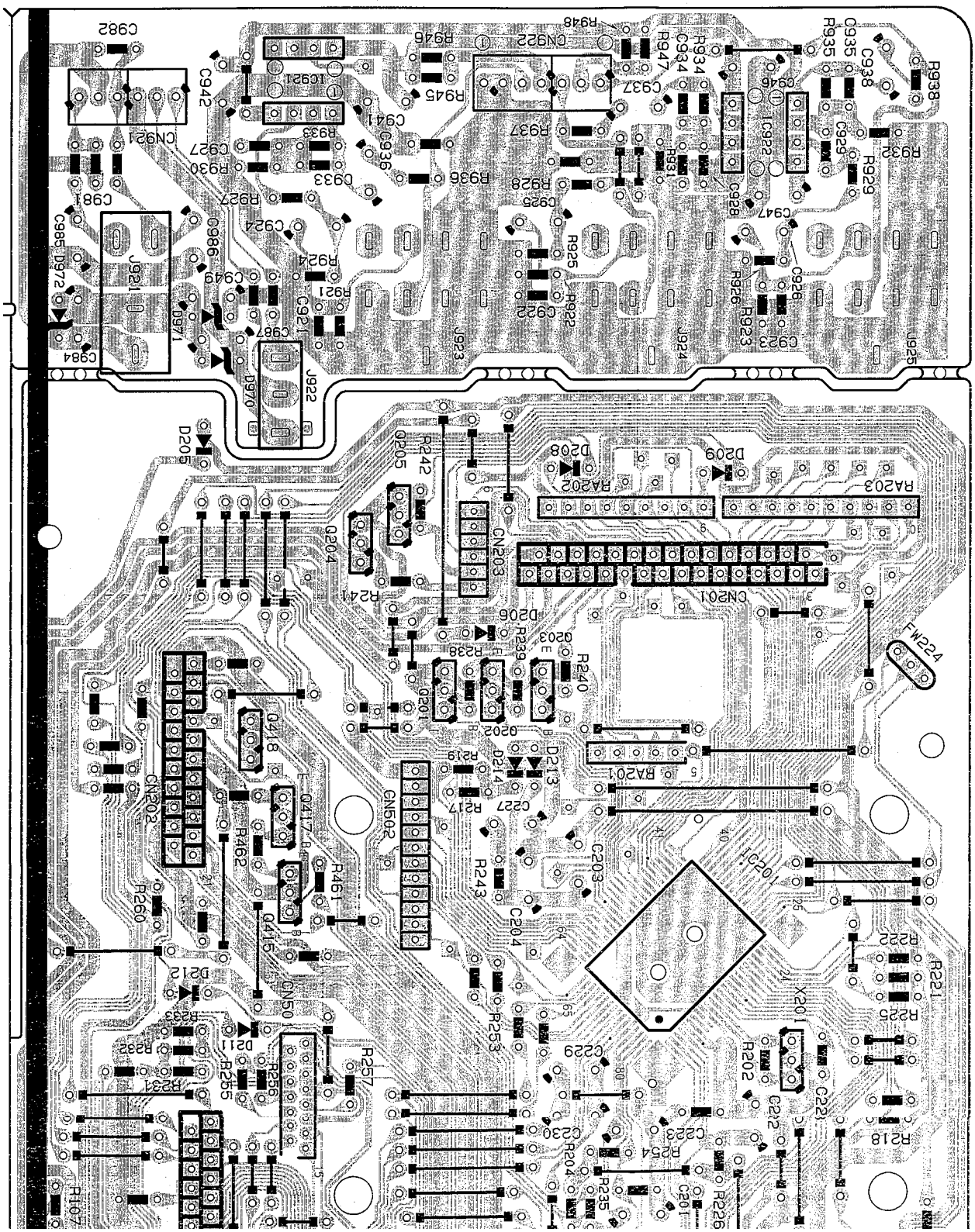
P2-24-a P2-24-b

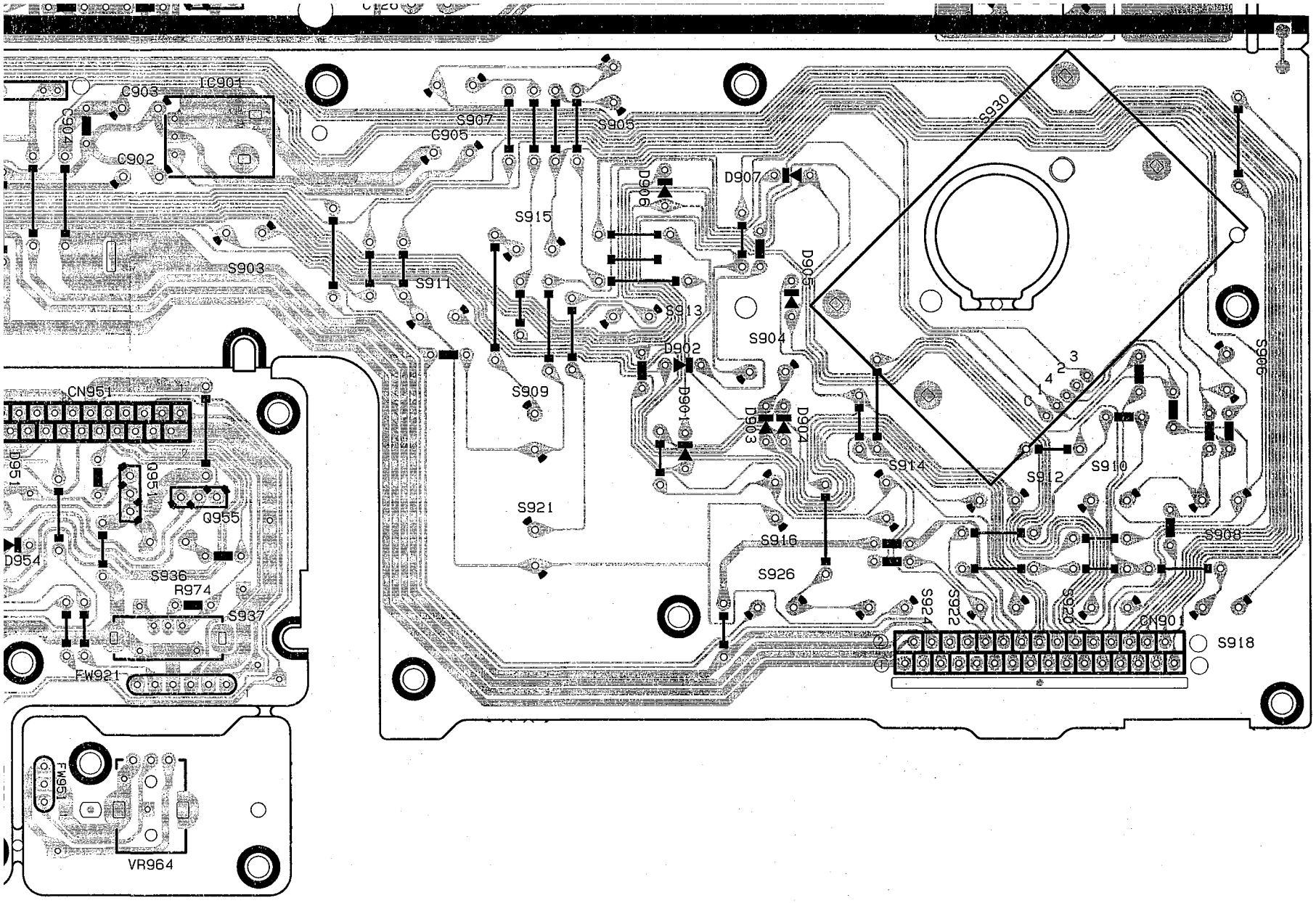


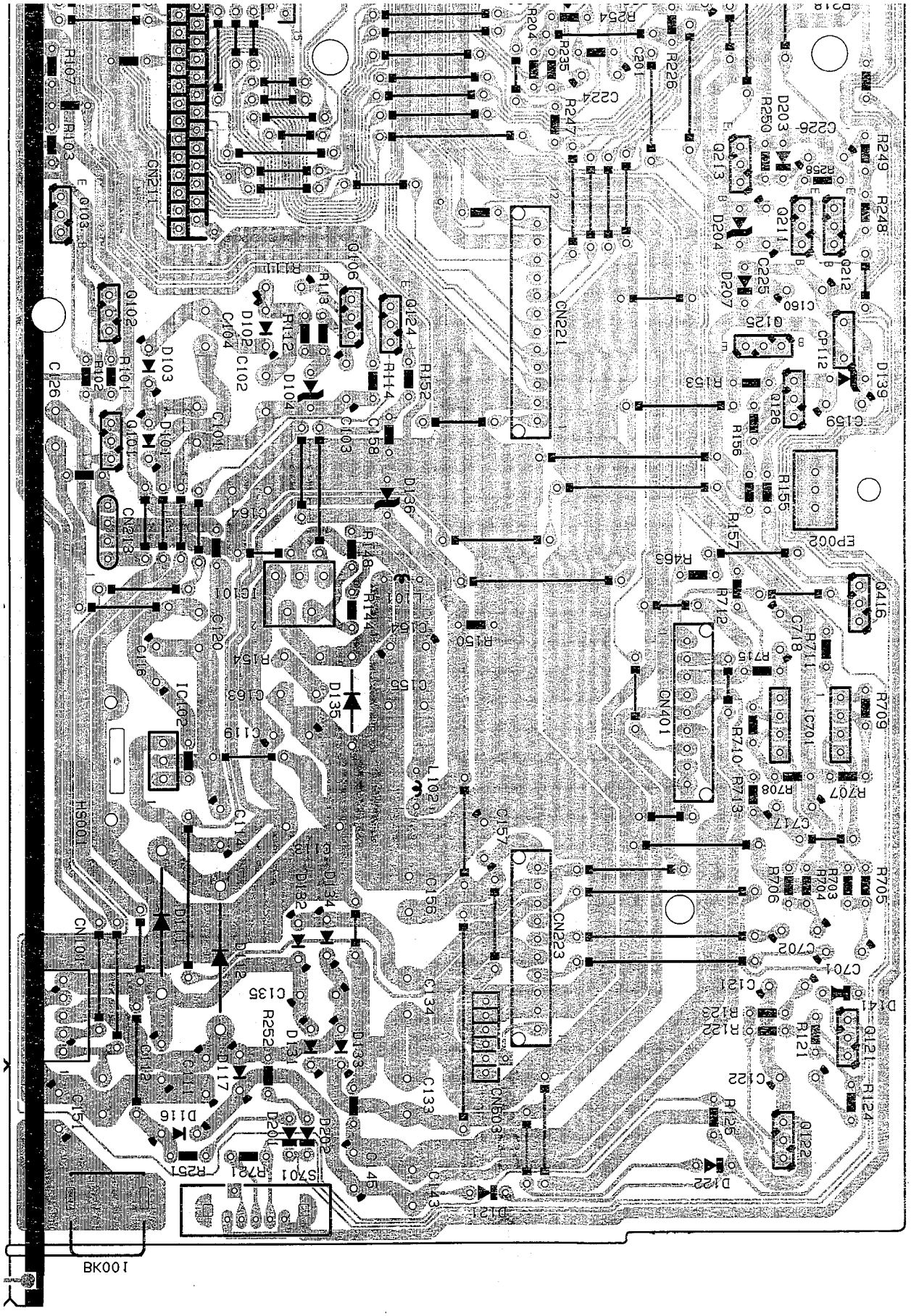
P2-24-c P2-24-d


C985
D972
DI901
C901
C904
S901
D968
D966
S941
S940
CN961
D965
D967
D955
D956
D957
D958
D959
D960
D961
R954
D951
R951
D962
D953
D954
S933
R955
R953
R959
S934
S935
D963
R962
R958
R960
D952
R957
R956
S932
S931
R965
R964
R963
R961
S938
VR961
C961
C972
FW922
FW951
FW961
R967
VR963
C962
C971
VR962
R972
IC961
R973
Q954

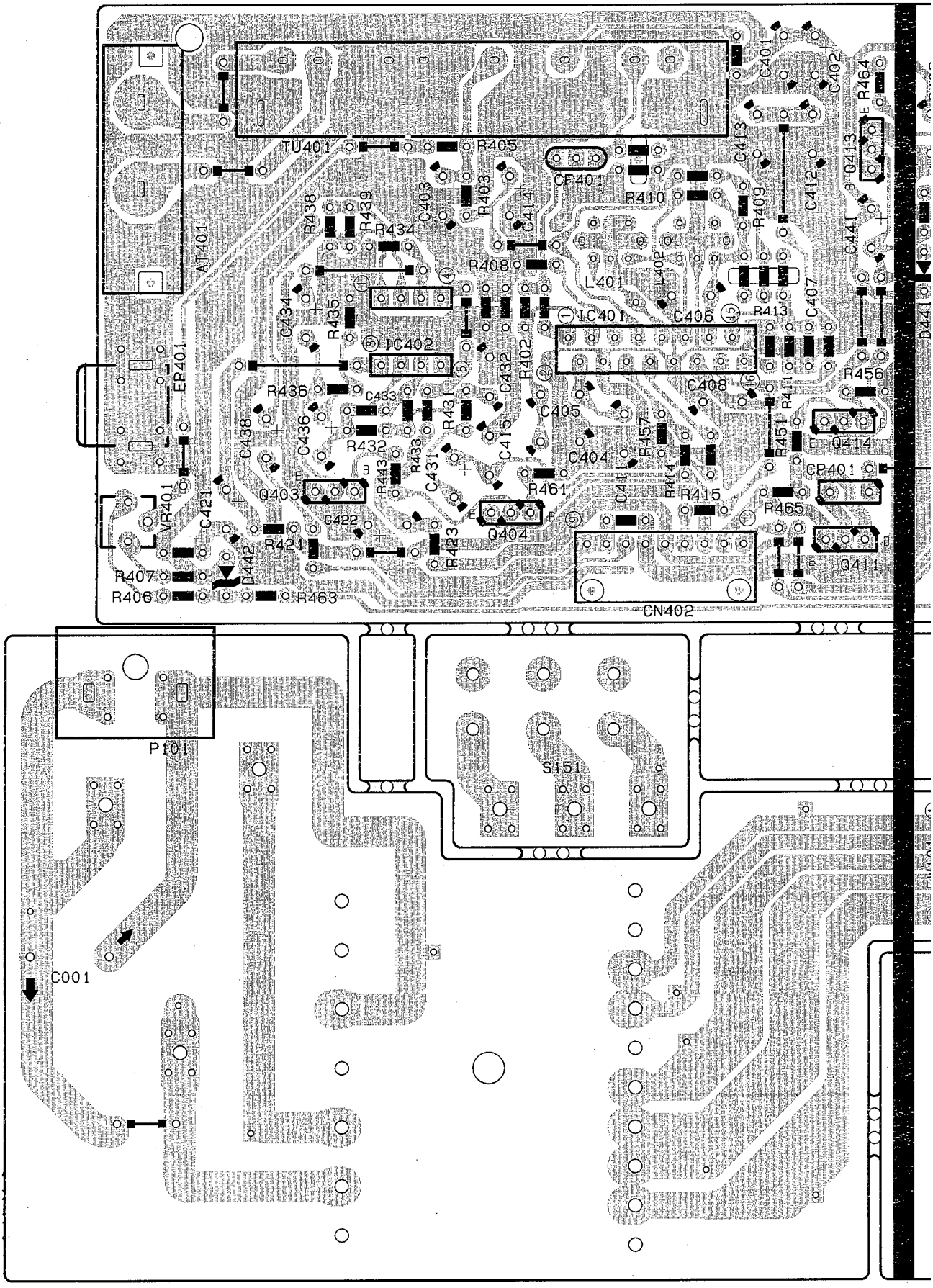
■ Front & Main P. C. B

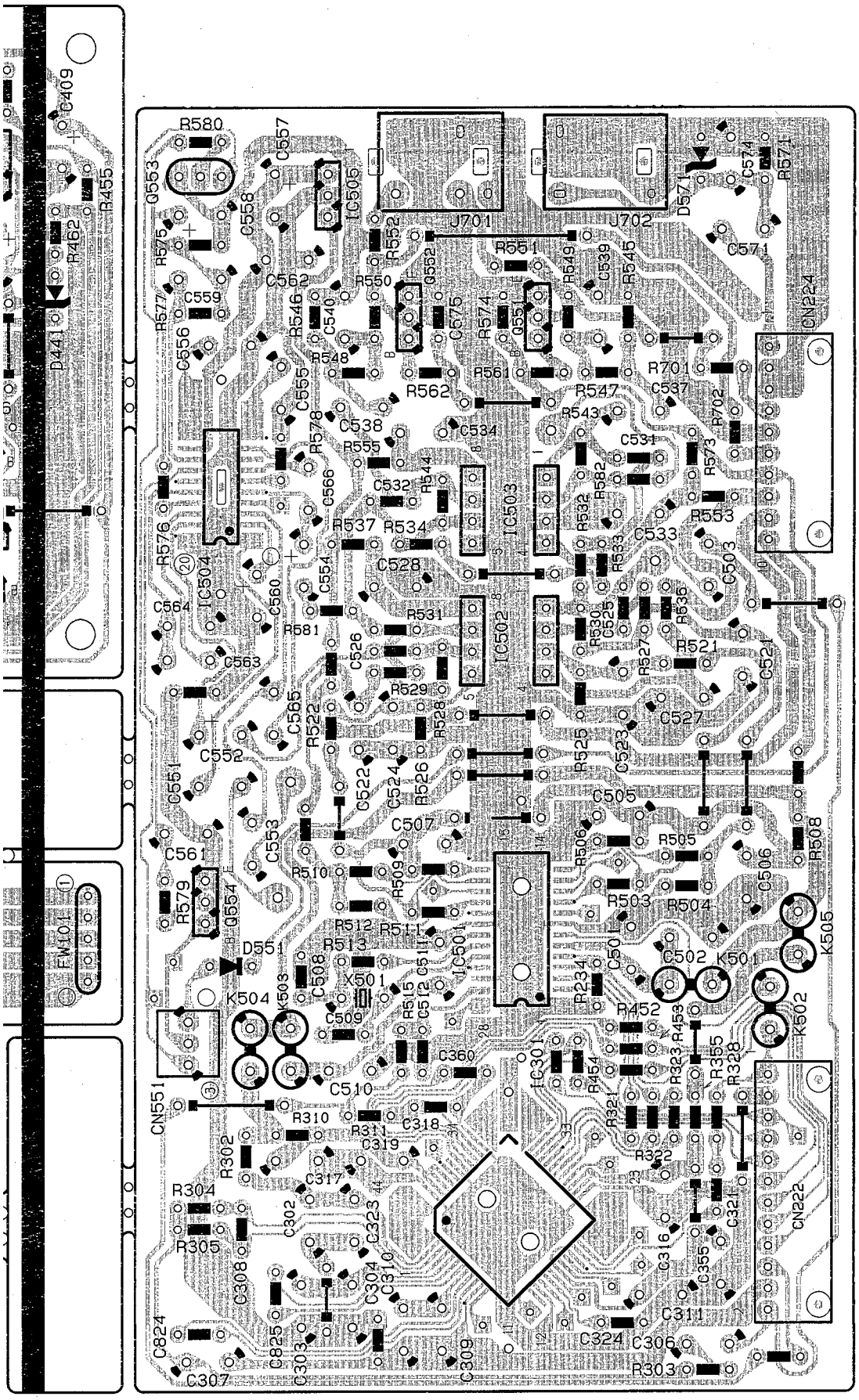



C903
IC901
C904
C902
S907
C905
S905
S930
D906
D907
S915
S903
S911
D905
S913
S904
D902
S906
CN951
S909
D901
D903
D904
S914
S912
S910
D951
Q951
Q955
S921
D954
S916
S908
S936
R974
S926
S924
S922
S920
S937
CN901
S918
FW921
FW951
VR964


BK001
CN101
CN213
CN221
CN223
CN401
CN503
HS001
IC102
IC701
L102
P001
S701
R249
R248
R250
R204
R235
R247
R226
R254
R107
R103
R249
R156
R155
R157
R709
R705
R707
R703
R704
R706
R710
R713
R712
R711
R121
R124
R125
R252
R251
C226
C224
C201
C225
C160
C126
C102
C101
C104
C103
C158
C116
C120
C135
C157
C156
C134
C133
C143
C145
C115
C112
C111
C114
C702
C701
C718
C707
D203
D204
D207
D102
D103
D104
D101
D136
D135
D134
D132
D133
D131
D117
D116
D201
D202
D122
Q213
Q211
Q212
Q125
Q126
Q102
Q101
Q124
Q121
Q122
Q103
Q106
Q416
Q708
T139

■ Power suplly & Audio/Video output P. C. B




FW101
C409
D441
R462
R455
R580
C557
C558
IC505
Q553
R575
J701
J702
D571
C574
R571
C571
R552
R551
R549
C539
R545
Q552
R550
C575
R574
Q551
C559
C556
R577
R548
C555
R562
R561
R547
R701
C537
R543
C534
C538
R555
R578
C566
C532
R544
C531
R573
R702
R582
IC503
R532
R553
C533
R537
R534
C554
C528
R576
IC504
C560
R581
R531
C564
C526
IC502
R530
C525
R536
R527
R521
C524
C563
R529
C565
R522
R528
C527
C552
R525
C523
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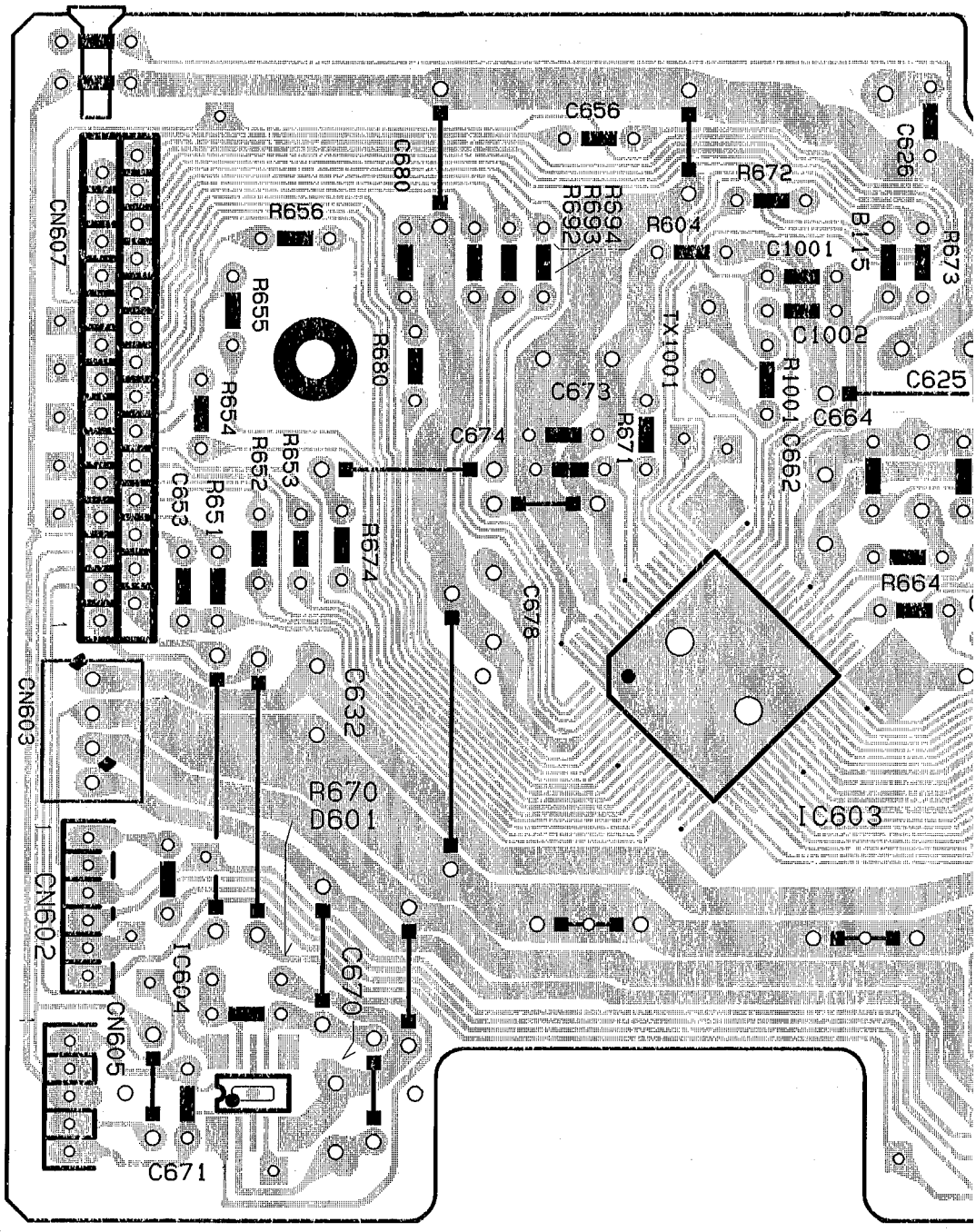
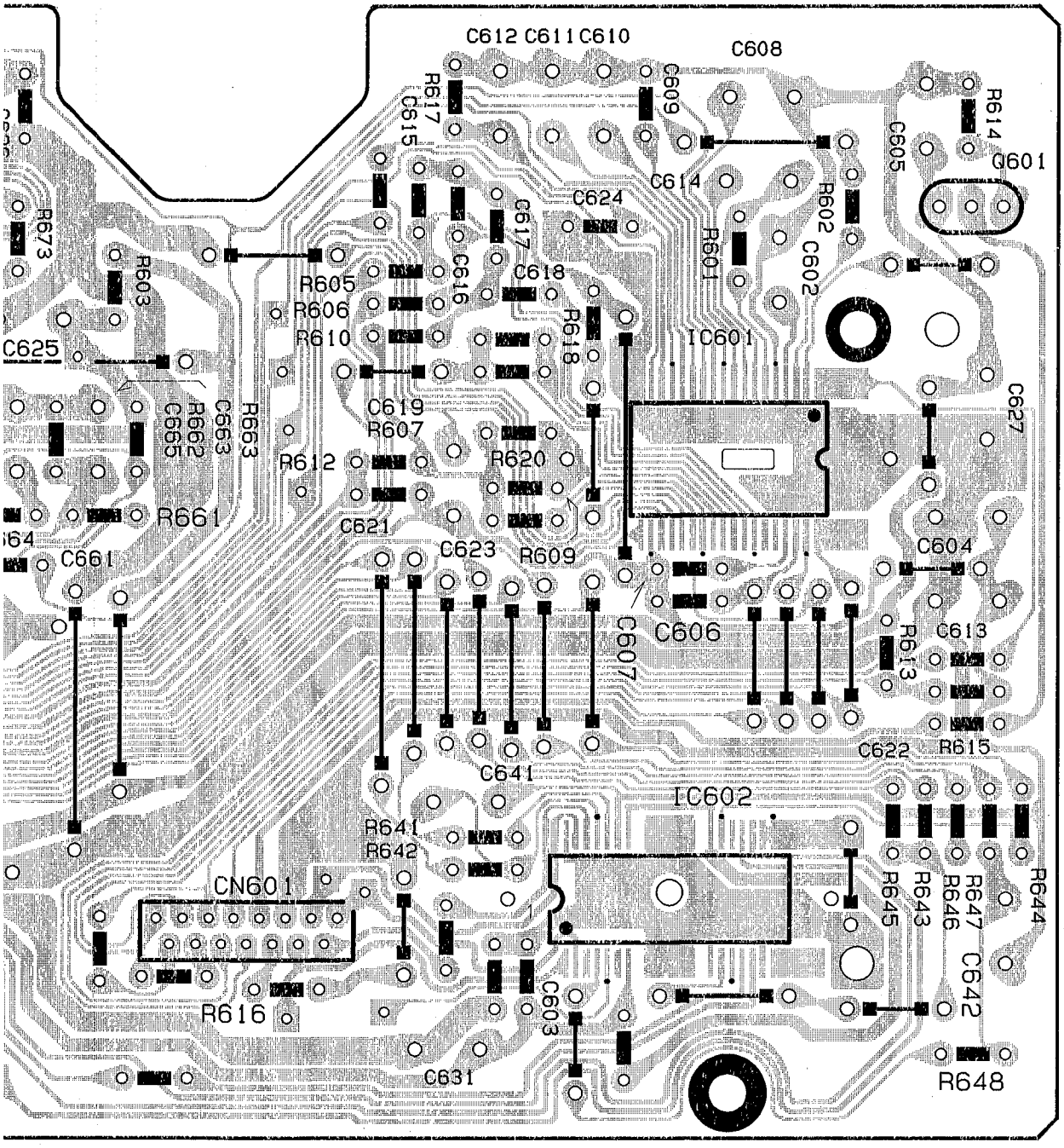
C522
R526
C524
C505
C507
R506
R505
C553
C561
R510
R509
R503
R504
C506
R508
R579
Q554
R512
R511
D551
R513
C502
K501
K505
C508
X501
K503
K504
C509
R515
C512
IC501
R234
C501
R452
K502
R453
R323
R355
R328
C360
IC301
R454
CN551
C510
R321
R310
C318
R311
C319
R322
R302
C317
R304
C302
C321
CN222
R305
C323
C316
C308
C310
C304
C355
C824
C825
C303
C309
C311
C324
C306
C307
R303

■ CD servo P. C. B


C656
C680
R672
C626
R694
R693
R692
R656
R604
C1001
B115
R673
R655
R680
TX1001
C1002
C673
R1001
C625
C664
C674
R671
C662
R654
R653
R652
C653
R651
R674
R664
C678
C632
CN607
CN603
R670
D601
IC603
CN602
IC604
C670
CN605
C671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IC602
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C642
C603
R616
C631
R648

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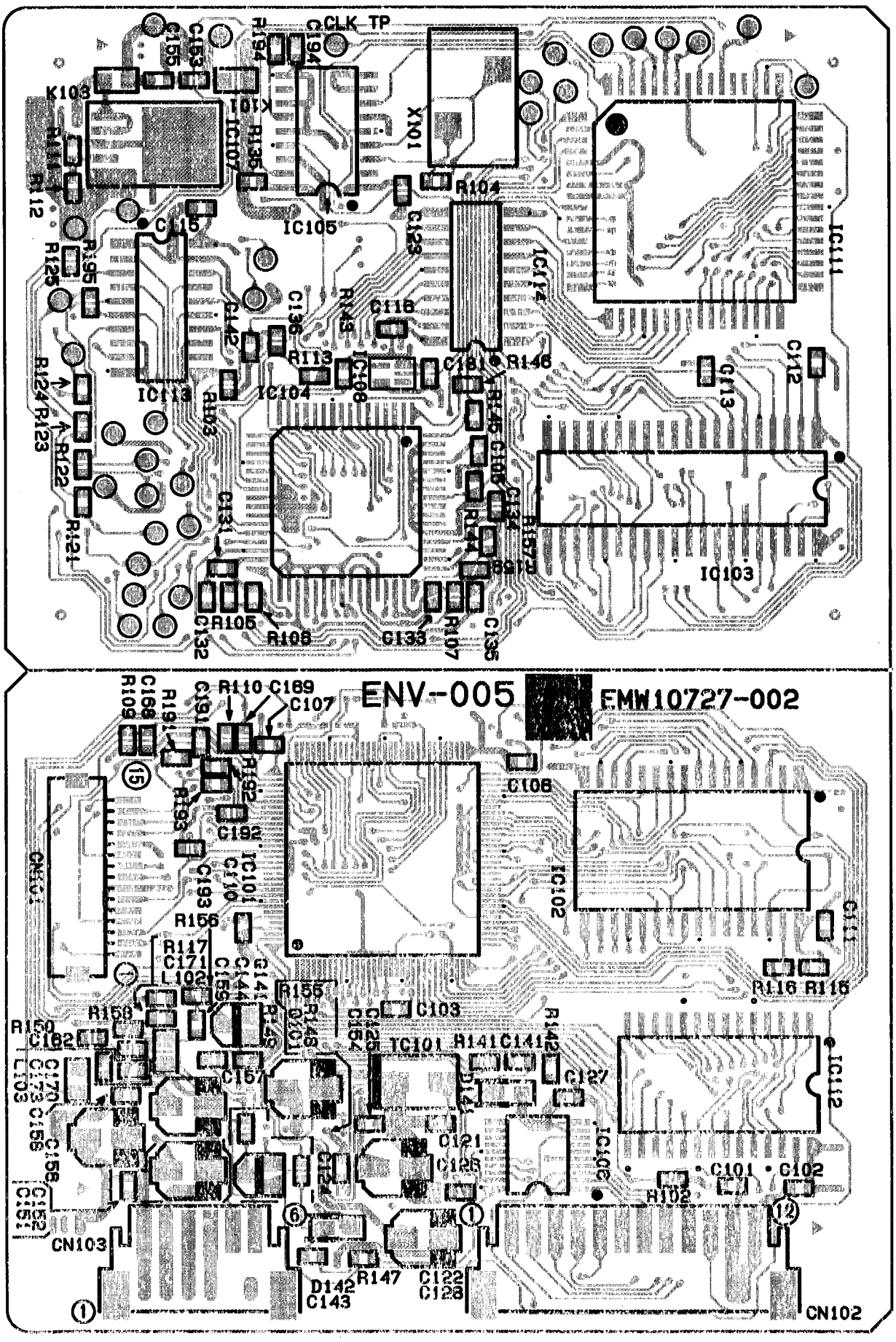
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XN01
IC105
IC107
IC104
IC113
IC111
IC103
IC102
IC112
IC101
ENV-005
EMW10727-002
CN103
CN102

PARTS LIST

[XL-SV22BK/23GD]

* All printed circuit boards and its assemblies are not available as service parts.

The Marks for Designated Areas

U ---- Universal Except All of Adove
UB ---- Hong Kong
UF ---- China
US ---- Singapore
UT ---- Taiwan

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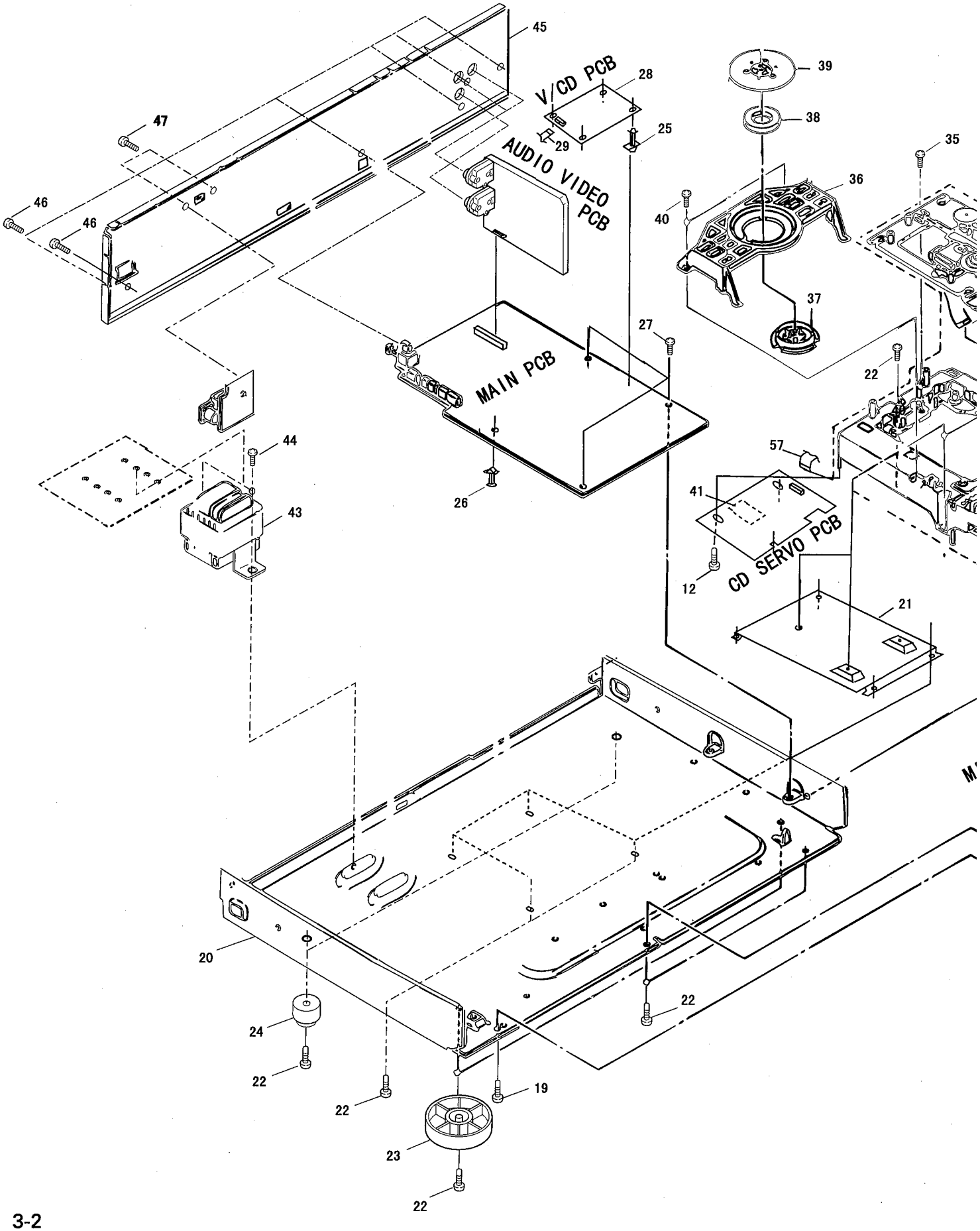
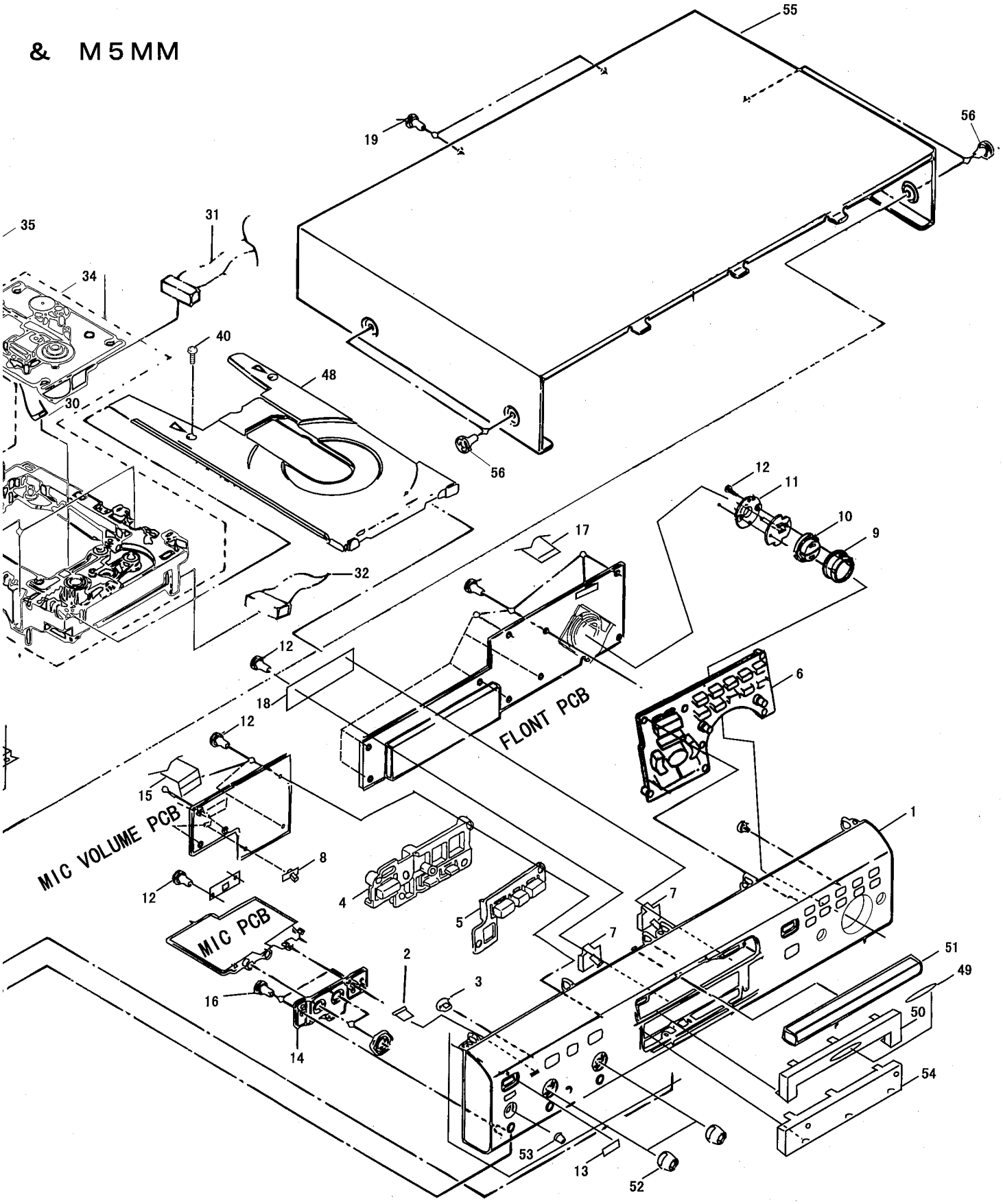
General Exploded View and Parts List

Block No. M1MM &



& M5MM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FLONT PCB
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MIC VOLUME PCB
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MIC PCB
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■PARTS LIST

Block No. M1MM

⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	1	LE10139-001A	FRONT PANEL	1		
	2	FSJD4001-002	INDICATOR LENS	1		
	3	E406686-001SM	INDICATOR LENS	1		
	4	LE20217-003AKP	PUSH BUTTON	1		
	5	LE20219-001A	PUSH BUTTON	1		
	6	LE10141-001A	KEY BUTTON	1		
	7	LE30472-001A	PUSH BUTTON	2		
	8	E75563-006SM	SLIDE KNOB	1		
	9	LE20222-001A	SHUTTLE COVER	1		
	10	LE20225-003AKP	P.BUTTON ASSY	1		
	11	LE20221-001A	SHUTTLE BASE	1		
	12	SDSF2608Z	SCREW	22		
	13	VJD5429-001	JVC MARK	1		
	14	E309766-002SM	MIC BKT	1		
	15	VWF1221-45TTB	FFC CABLE	1		
	16	SDSF2606M	TAPPING SCREW	2		
	17	VWF1231-14PPB	FFC CABLE	1		
	18	LV30029-001A	PROTECTOR	1		
	19	SBSG3008M	TAPPING SCREW	5		
	20	E103006-005SMKP	CD CHASSIS BASE	1		
	21	LE20305-001A	MECHA BRACKET	1		
	22	SBST3008Z	TAPPING SCREW	11		
	23	VJF4039-00MSM	FOOT ASSY	2		
	24	E47227-036	FOOT	2		
	25	E300167-002	FASTENER	4		
	26	E310244-002	FASTENER	1		
	27	GBSG3008CC	TAPPING SCREW	3		
	28	ENV-005AM	JEM VCD CB ASSY	2		
	29	VWF1015-06TTA	FLAT WIRE	1		
	30	EWR615M-08BBJ2	FLAT WIRE	1		
	31	EWS266-B410	SOCKET WIRE ASSY	1		
	32	EWS265-B412	SOCKET WIRE ASSY	1		
	34	--------	JEM CD MECHA KI	1		
	35	E406293-002	SPECIAL SCREW	1		
	36	E26756-222SS	CLAMPER BASE	1		
	37	E306835-221SS	CD CLAMPER	1		
	38	E74897-002	CD MAGNET	1		
	39	E306836-223SS	YOKE PLATE	1		
	40	SBSF3008M	TAPPING SCREW	3		
	41	E306805-068	SPACER	1		
	43	QQT0173-001	POWER TRANSFORMER	1		
	44	QYSDSTL4008E	SPECIAL SCREW	2		
	45	LE20256-003AKP	REAR PANEL	1		UUFUS
	45	LE20256-007AKP	REAR PANEL	1		UB
	45	LE20256-012AKP	REAR PANEL	1		UT
	46	QYSBSGY3008E	SPECIAL SCREW	6		
	47	SBSF2608M	TAPPING SCREW	2		UUFUSUT
	48	E102358-222	CD TRAY	1		
	49	LE30473-002A	MARK PLATE	1		
	50	LE20304-001A	ORNAMENT PLATE	1		
	51	LE20306-001A	CD FITTING	1		
	52	E309765-006SM	VOLUME KNOB	2		
	53	E409229-006SM	VOLUME KNOB	1		
	54	E209067-002SM	WINDOW SCREEN	1		
	55	E206967-006SM	METAL COVER	1		
	56	E406308-003	SPECIAL SCREW	4		

■PARTS LIST Block No. M1MM

⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	57	VWF1228-16TTB	FFC CABLE	1		

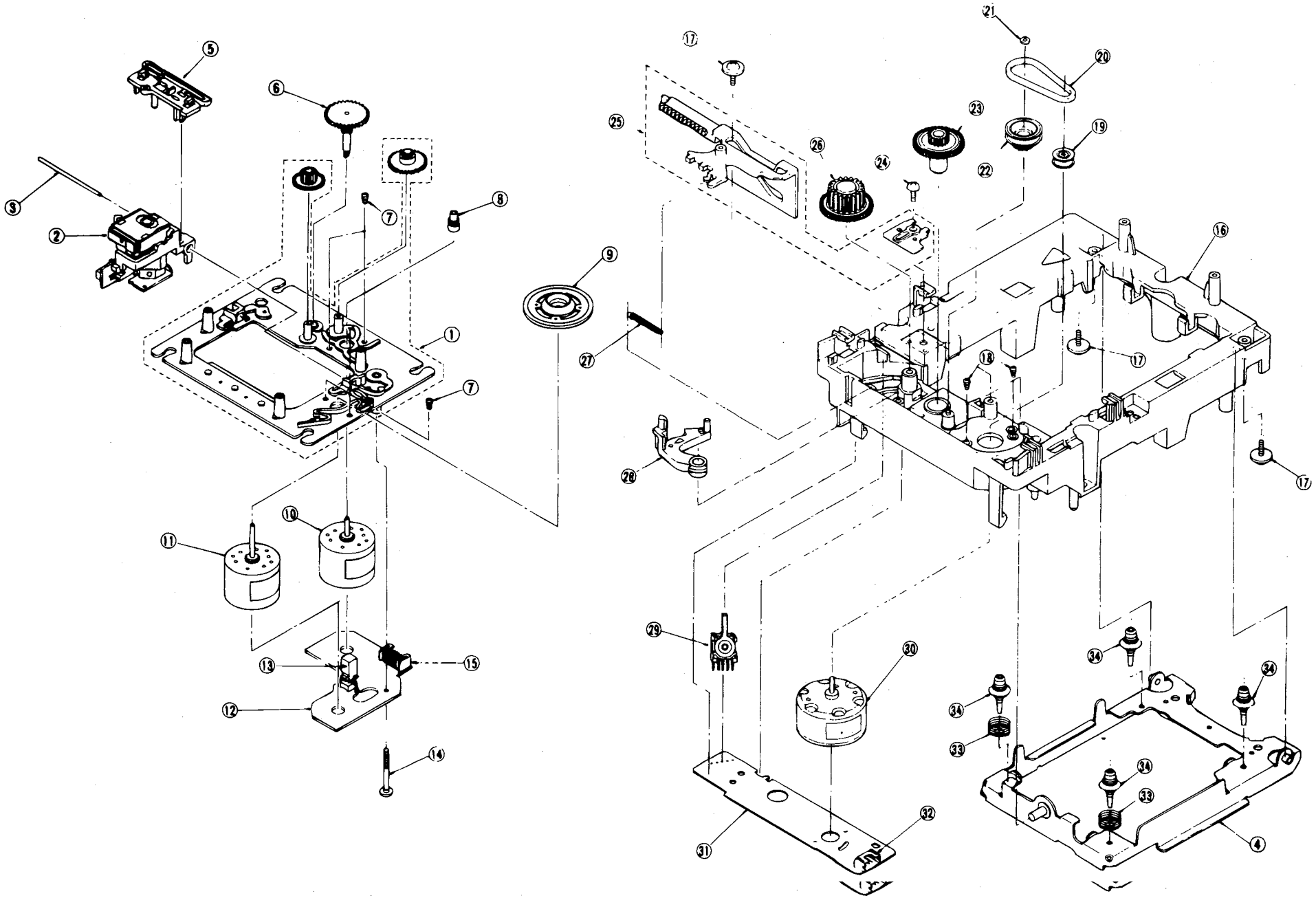
■PARTS LIST (XL-SV23GD) Block No. M5MM

* Please see the parts list of XL-SV22BK for parts which are not described.

Page	⚠	Item	Parts Number	Description	Area
3-3		1	LE10139-002AKP	FRONT PANEL	
3-3		4	LE20217-004AKP	PUSH BUTTON	
3-3		6	LE10141-002AKP	KEY BUTTON	
3-3		8	E75563-008SM	SLIDE KNOB	
3-3		9	LE20222-002A	SHUTTLE COVER	
3-3		10	LE20225-004AKP	P.BUTTON ASSY	
3-3		11	LE20221-002A	SHUTTLE BASE	
3-3		19	SBSG3008N	TAPPING SCREW	
3-3		45	LE20256-006A	REAR PANEL	U
3-3		45	LE20256-010A	REAR PANEL	UF
3-3		50	LE20304-003AKP	ORNAMENT PLATE	
3-3		51	LE20306-003AKP	CD FITTING	
3-3		52	E309765-005SM	VOLUME KNOB	
3-3		53	E409229-005SM	VOLUME KNOB	
3-3		55	E206967-010	METAL COVER	
3-3		56	E406308-004	SPECIAL SCREW	
3-11		1	EVT0007-001A-M	INST BOOK	
3-12		2	LE30600-006A	XL-SV23GD P.CASE	
3-12		3	E73660-090	PACKING SHEET	

CD Mechanism Ass'y and Parts List

Block No. M 2 MM



PARTS LIST(CD MECHANISM ASS'Y) Block No. M2MM

⚠	Item	Parts Number	Parts Name	Q'ty	Description
	1	E207244-001	MECHA BASE	1	
	2	OPTIMA-150S	OPTICAL PICK-UP	1	
	3	E406777-001	GUIDE SHAFT	1	
	4	E307179-221	ELEVATOR BASE ASSY	1	
	5	E307746-001	CD RACK	1	
	6	E307745-221SS	CAM GEAR	1	
	7	SDSP2003N	SCREW	4	
	8	E406750-221SS	PINION GEAR	1	
	9	E75807-302	C.D.TURN TABLE	1	
	10	E406784-001	DC MOTOR	1	
	11	E406783-001	DC MOTOR	1	
	12	EMW10190-001(S)	PRINTED BOARD	1	
	13	EBS1100-005	LEAF SWITCH	1	
	14	E75832-001	SPECIAL SCREW	1	
	15	EMV5109-006B	CONNECT TERMINAL	1	
	16	E102357-221	LOADING BASE	1	
	17	E65923-003	TAPPING SCREW	3	
	18	SPSK2640Z	SCREW	2	
	19	E75984-001	MOTOR PULLEY	1	
	20	E75950-002	REEL BELT	1	
	21	E72024-001	SPEED NUT	1	
	22	E75985-001	DRIVE GEAR	1	
	23	E75986-221SS	CD GEAR	1	
	24	SBSF3008Z	TAPPING SCREW	1	
	25	E307252-221	CAM ASSY	1	
	26	E75987-001	REEL GEAR	1	
	27	E75989-001	SPRING	1	
	28	E307162-221	ACTION LEVER	1	
	29	ESS1200-002	LEVER SWITCH	1	
	30	RF-500TB-12560	DC MOTOR	1	
	31	EMW10255-002(S)	PRINTED BOARD	1	
	32	EMV5109-005B	CONNECT TERMINAL	1	
	33	E406871-001	SPRING	2	
	34	E406294-002	INSULATOR	4	

■Electrical Parts List(MAIN CB)

⚠	Item	Parts Number	Description	Area
		I.C.S		
	IC101	PQ1CF2	I.C(M)	
⚠	IC102	NJM78M09FA	I.C(MONO-ANA)	
	IC201	HD6433726SD63F	I.C(M)	
	IC701	NJM4580DD	I.C(MONO-ANALOG)	
	IC901	GP1U271X	INFRARED DETECT UNIT	
	IC921	NJM4580DD	I.C(MONO-ANALOG)	
	IC922	NJM4580DD	I.C(MONO-ANALOG)	
	IC961	NJM4580L	I.C(MONO-ANALOG)	
		DIODES		
	D101	1SR35-100A-T5	SILICON	
	D102	1SR35-100A-T5	SILICON	
	D103	1SR35-100A-T5	SILICON	
	D104	MTZJ27C-T2	ZENER	
	D111	S3V20-F4P20	SILICON	
	D112	S3V20-F4P20	SILICON	
	D116	1SR139-200-T4	SILICON	
	D117	1SR139-200-T4	SILICON	
	D121	1SS133-T2	SI.DIODE	
	D122	1SS133-T2	SI.DIODE	
	D131	1SR139-200-T4	SILICON	
	D132	1SR139-200-T4	SILICON	
	D133	1SR139-200-T4	SILICON	
	D134	1SR139-200-T4	SILICON	
	D135	11DF2-FD	SILICON	
	D136	MTZJ5.6C-T2	ZENER	
	D139	MTZJ6.2C-T2	ZENER	
	D201	1SS133-T2	SI.DIODE	
	D202	1SS133-T2	SI.DIODE	
	D203	1SS133-T2	SI.DIODE	
	D204	MTZJ5.1C-T2	ZENER	
	D205	1SS119-02-T2	SILICON	
	D206	1SS119-02-T2	SILICON	
	D207	1SS119-02-T2	SILICON	
	D208	1SS133-T2	SI.DIODE	
	D209	1SS133-T2	SI.DIODE	
	D211	1SS133-T2	SI.DIODE	
	D212	1SS133-T2	SI.DIODE	
	D213	1SS119-02-T2	SILICON	
	D214	1SS119-02-T2	SILICON	
	D901	1SS133-T2	SI.DIODE	
	D902	1SS133-T2	SI.DIODE	
	D903	1SS133-T2	SI.DIODE	
	D904	1SS133-T2	SI.DIODE	
	D905	1SS133-T2	SI.DIODE	
	D906	1SS133-T2	SI.DIODE	
	D907	1SS133-T2	SI.DIODE	
	D951	SLR-342VC-T	L.E.D.	
	D953	1SS133-T2	SI.DIODE	
	D954	1SS133-T2	SI.DIODE	
	D955	SLR-342MC-T	L.E.D.	
	D956	SLR-342MC-T	L.E.D.	
	D957	SLR-342MC-T	L.E.D.	
	D958	SLR-342MC-T	L.E.D.	
	D959	SLR-342MC-T	L.E.D.	
	D960	SLR-342MC-T	L.E.D.	
	D961	SLR-342MC-T	L.E.D.	
	D962	SLR-342MC-T	L.E.D.	
	D963	SLR-342VC-T	L.E.D.	
	D965	SLR-342MC-T	L.E.D.	
	D966	SLR-342MC-T	L.E.D.	
	D967	SLR-342MC-T	L.E.D.	
	D968	SLR-342MC-T	L.E.D.	
	D970	MTZJ3.9B-T2	ZENER	
	D971	MTZJ3.9B-T2	ZENER	
	D972	MTZJ3.9B-T2	ZENER	
		TRANSISTORS		
	Q101	DTA114YS	DIGITAL TRANSISTOR	
	Q102	2SD2144S/VW/-T	SILICON	

⚠	Item	Parts Number	Description	Area
	Q103	2SD2144S/VW/-T	SILICON	
	Q106	2SB1357/EF/-T	SILICON	
	Q121	2SA933S/RS/-T	SILICON	
	Q122	DTC114YS	DIGITAL TRANSISTOR	
	Q124	DTC124ES-T	SILICON	
	Q125	2SB1357/EF/-T	SILICON	
	Q126	2SD1302/ST/-T	SILICON	
	Q204	DTC114YS	DIGITAL TRANSISTOR	
	Q205	DTC114YS	DIGITAL TRANSISTOR	
	Q211	DTC114YS	DIGITAL TRANSISTOR	
	Q212	DTC114YS	DIGITAL TRANSISTOR	
	Q213	DTC114YS	DIGITAL TRANSISTOR	
	Q951	DTC114YS	DIGITAL TRANSISTOR	
	Q954	DTC114YS	DIGITAL TRANSISTOR	
	Q955	DTA114YS	DIGITAL TRANSISTOR	
		CAPACITORS		
	C101	QETB1EM-477E	470MF 25V E.CAP.	
	C102	QETB1JM-227	220MF 63V AL E.CAP.	
	C103	QETB1HM-475E	4.7MF 50V E.CAP.	
	C104	QETB1HM-477	470MF 50V AL E.CAP.	
	C106	QCF31HZ-473Z	0.047MF 50V CERAMIC	
	C111	QFVJ1HJ-473Z	0.047MF 50V T.FILM	
	C112	QFVJ1HJ-473Z	0.047MF 50V T.FILM	
	C113	QETB1EM-478E	4700MF 25V E.CAP.	
	C114	QFVJ1HJ-333Z	0.033MF 50V T.FILM	
	C116	QETB1HM-474	0.47MF 50V E.CAP.	
	C119	QFN31HJ-104Z	0.1MF 50V MYLAR CAP.	
	C121	QETB1EM-226N	22MF 25V E.CAP.	
	C122	QETC1EM-227ZN	220MF 25V AL E.CAP.	
	C126	QETB1AM-477	470MF 10V E.CAP.	
	C133	QETB1EM-108	1000MF 25V AL E.CAP.	
	C134	QETB1EM-108	1000MF 25V AL E.CAP.	
	C135	QFV82AJ-104	0.1MF 100V THIN FILM CAP.	
	C143	QETB1EM-477E	470MF 25V E.CAP.	
	C145	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C151	QCZ0205-155	1.5MF 25V C.CAP.	
	C154	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C155	QETB0JM-108N	1000MF 6.3V E.CAP.	
	C156	QETM0JM-228	2200MF 6.3V AL E.CAP.	
	C159	QETB1CM-107	100MF 16V AL E.CAP.	
	C160	QETB0JM-477	470MF 6.3V AL E.CAP.	
	C201	QDYB1CM-103Y	0.01MF 16V C CAP.	
	C203	QCZ0205-155	1.5MF 25V C.CAP.	
	C204	QETC1AM-107ZN	100MF 10V E.CAP.	
	C222	QFN31HJ-103Z	0.01MF 50V MYLAR CAP.	
	C223	QFN31HJ-103Z	0.01MF 50V MYLAR CAP.	
	C224	QFN31HJ-473ZN	0.047MF 50V MYLAR CAP.	
	C225	QETB1HM-225	2.2MF 50V AL E.CAP.	
	C226	QETB1HM-105	1MF 50V AL E.CAP.	
	C227	QEZ0329-479Z	47000MF ELECTRO	
	C228	QDYB1CM-103Y	0.01MF 16V C CAP.	
	C229	QETC1AM-107ZN	100MF 10V E.CAP.	
	C230	QFN31HJ-103Z	0.01MF 50V MYLAR CAP.	
	C701	QETB1HM-475E	4.7MF 50V E.CAP.	
	C702	QETB1HM-475E	4.7MF 50V E.CAP.	
	C717	QETB1EM-107	100MF 25V AL E.CAP.	
	C718	QETB1EM-107	100MF 25V AL E.CAP.	
	C901	QER51HM-475	4.7MF 50V AL E.CAP.	
	C902	QER51HM-475	4.7MF 50V AL E.CAP.	
	C903	QER50JM-476	47MF 6.3V AL E.CAP.	
	C904	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C921	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C923	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C924	QETB1HM-105	1MF 50V AL E.CAP.	
	C926	QETB1HM-105	1MF 50V AL E.CAP.	
	C927	QCBB1HK-561Y	560PF 50V CER.CAP.	
	C929	QCBB1HK-561Y	560PF 50V CER.CAP.	
	C933	QCSB1HJ-220	22PF 50V CER.CAP.	
	C935	QCSB1HJ-220	22PF 50V CER.CAP.	

■Electrical Parts List(MAIN CB)

⚠	Item	Parts Number	Description	Area
	C936	QETB1HM-474	0.47MF 50V E.CAP.	
	C938	QETB1HM-105	1MF 50V AL E.CAP.	
	C941	QETB1CM-476	47MF 16V AL E.CAP.	
	C942	QETB1CM-476	47MF 16V AL E.CAP.	
	C946	QCF31HZ-473Z	0.047MF 50V CERAMIC	
	C947	QCF31HZ-473Z	0.047MF 50V CERAMIC	
	C949	QCF31HZ-223Z	0.022MF 50V CERAMIC	
	C961	QER61HM-105Z	1MF 50V AL E.CAP.	
	C962	QCBB1HK-820Y	82PF 50V CER.CAP.	
	C971	QER51CM-226	22MF 16V AL E.CAP.	
	C972	QER51CM-226	22MF 16V AL E.CAP.	
	C984	QCS21HJ-271A	270PF 50V CER.CAP.	
	C985	QCB31HK-103Z	0.01MF 50V CERAMIC	
	C986	QCB31HK-103Z	0.01MF 50V CERAMIC	
	C987	QCF31HZ-103Z	0.01MF 50V CERAMIC	
		RESISTORS		
	R101	QRE141J-562Y	5.6K 1/4W R.NETWORK	
	R102	QRE141J-562Y	5.6K 1/4W R.NETWORK	
	R103	QRE141J-751Y	750 1/4W R.NETWORK	
	R107	QRE141J-751Y	750 1/4W R.NETWORK	
	R111	QRZ9005-560X	56 FUSIBLE	
	R112	QRE141J-472Y	4.7K 1/4W R.NETWORK	
	R113	QRE141J-121Y	120 1/4W R.NETWORK	
	R114	QRE141J-473Y	47K 1/4W R.NETWORK	
	R121	QRE141J-183Y	18K 1/4W R.NETWORK	
	R122	QRE141J-273Y	27K 1/4W R.NETWORK	
	R123	QRE141J-221Y	220 1/4W R.NETWORK	
	R124	QRE141J-331Y	330 1/4W R.NETWORK	
	R125	QRE141J-183Y	18K 1/4W R.NETWORK	
	R144	QRE141J-102Y	1K 1/4W R.NETWORK	
	R148	QRE141J-302Y	3K 1/4W R.NETWORK	
	R150	QRE141J-561Y	560 1/4W R.NETWORK	
	R152	QRE141J-101Y	100 1/4W R.NETWORK	
	R153	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R155	QRE141J-221Y	220 1/4W R.NETWORK	
	R156	QRE141J-221Y	220 1/4W R.NETWORK	
	R157	QRE141J-182Y	1.8K 1/4W R.NETWORK	
	R202	QRE141J-105Y	1M 1/4W R.NETWORK	
	R204	QRE141J-472Y	4.7K 1/4W R.NETWORK	
	R217	QRE141J-103Y	10K 1/4W R.NETWORK	
	R218	QRE141J-103Y	10K 1/4W R.NETWORK	
	R219	QRE141J-103Y	10K 1/4W R.NETWORK	
	R221	QRE141J-103Y	10K 1/4W R.NETWORK	
	R225	QRE141J-103Y	10K 1/4W R.NETWORK	
	R226	QRE141J-472Y	4.7K 1/4W R.NETWORK	
	R231	QRE141J-101Y	100 1/4W R.NETWORK	
	R232	QRE141J-391Y	390 1/4W R.NETWORK	
	R233	QRE141J-821Y	820 1/4W R.NETWORK	
	R235	QRE141J-102Y	1K 1/4W R.NETWORK	
	R241	QRE141J-750Y	75 1/4W R.NETWORK	
	R242	QRE141J-750Y	75 1/4W R.NETWORK	
	R243	QRE141J-221Y	220 1/4W R.NETWORK	
	R247	QRE141J-103Y	10K 1/4W R.NETWORK	
	R248	QRE141J-103Y	10K 1/4W R.NETWORK	
	R249	QRE141J-102Y	1K 1/4W R.NETWORK	
	R250	QRE141J-104Y	100K 1/4W R.NETWORK	
	R251	QRE141J-103Y	10K 1/4W R.NETWORK	
	R252	QRE141J-103Y	10K 1/4W R.NETWORK	
	R253	QRE141J-102Y	1K 1/4W R.NETWORK	
	R254	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R258	QRE141J-221Y	220 1/4W R.NETWORK	
	R703	QRE141J-473Y	47K 1/4W R.NETWORK	
	R704	QRE141J-473Y	47K 1/4W R.NETWORK	
	R705	QRE141J-103Y	10K 1/4W R.NETWORK	
	R706	QRE141J-103Y	10K 1/4W R.NETWORK	
	R711	QRE141J-151Y	150 1/4W R.NETWORK	
	R712	QRE141J-151Y	150 1/4W R.NETWORK	
	R713	QRE141J-331Y	330 1/4W R.NETWORK	
	R715	QRE141J-331Y	330 1/4W R.NETWORK	

⚠	Item	Parts Number	Description	Area
	R721	QRE141J-472Y	4.7K 1/4W R.NETWORK	
	R921	QRE141J-473Y	47K 1/4W R.NETWORK	
	R923	QRE141J-473Y	47K 1/4W R.NETWORK	
	R924	QRE141J-103Y	10K 1/4W R.NETWORK	
	R926	QRE141J-103Y	10K 1/4W R.NETWORK	
	R927	QRE141J-102Y	1K 1/4W R.NETWORK	
	R929	QRE141J-102Y	1K 1/4W R.NETWORK	
	R930	QRE141J-561Y	560 1/4W R.NETWORK	
	R932	QRE141J-561Y	560 1/4W R.NETWORK	
	R933	QRE141J-223Y	22K 1/4W R.NETWORK	
	R935	QRE141J-223Y	22K 1/4W R.NETWORK	
	R936	QRE141J-471Y	470 1/4W R.NETWORK	
	R938	QRE141J-181Y	180 1/4W R.NETWORK	
	R946	QRE141J-331Y	330 1/4W R.NETWORK	
	R947	QRE141J-331Y	330 1/4W R.NETWORK	
	R951	QRE141J-471Y	470 1/4W R.NETWORK	
	R954	QRE141J-821Y	820 1/4W R.NETWORK	
	R955	QRE141J-471Y	470 1/4W R.NETWORK	
	R956	QRE141J-471Y	470 1/4W R.NETWORK	
	R957	QRE141J-621Y	620 1/4W R.NETWORK	
	R958	QRE141J-112Y	1.1K 1/4W R.NETWORK	
	R959	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R960	QRE141J-682Y	6.8K 1/4W R.NETWORK	
	R961	QRE141J-182Y	1.8K 1/4W R.NETWORK	
	R962	QRE141J-272Y	2.7K 1/4W R.NETWORK	
	R963	QRE141J-123Y	12K 1/4W R.NETWORK	
	R965	QRE141J-562Y	5.6K 1/4W R.NETWORK	
	R967	QRE141J-913Y	91K 1/4W R.NETWORK	
	R972	QRE141J-511Y	510 1/4W R.NETWORK	
	R973	QRE141J-511Y	510 1/4W R.NETWORK	
	R974	QRE141J-472Y	4.7K 1/4W R.NETWORK	
	RA201	QRB045J-472	4.7K 1/8W NETWORK RES.	
	VR961	QVQ0006-B14	10K VARIABLE RES.	
	VR963	QVQ0006-B14	10K VARIABLE RES.	
	VR964	QVQ0006-B14	10K VARIABLE RES.	
		OTHERS		
		EMW10741-002	PRINTED BOARD	
		SBSG3008CC	TAPPING SCREW	
	J921	QNS0022-001	JACK	
	J922	QNS0071-001	PIN JACK	
	J923	QNS0021-001	JACK	
	J925	QNS0021-001	JACK	
	L101	QQL10AK-101	INDUCTOR	
	L102	QQL10AK-101	INDUCTOR	
	S701	QSW0676-001	SLIDE SWITCH	
	S901	QSW0499-001Z	PUSH SW I.M	
	S903	QSW0499-001Z	PUSH SW I.M	
	S904	QSW0499-001Z	PUSH SW I.M	
	S905	QSW0499-001Z	PUSH SW I.M	
	S906	QSW0499-001Z	PUSH SW I.M	
	S907	QSW0499-001Z	PUSH SW I.M	
	S908	QSW0499-001Z	PUSH SW I.M	
	S909	QSW0499-001Z	PUSH SW I.M	
	S910	QSW0499-001Z	PUSH SW I.M	
	S911	QSW0499-001Z	PUSH SW I.M	
	S912	QSW0499-001Z	PUSH SW I.M	
	S913	QSW0499-001Z	PUSH SW I.M	
	S914	QSW0499-001Z	PUSH SW I.M	
	S915	QSW0499-001Z	PUSH SW I.M	
	S916	QSW0499-001Z	PUSH SW I.M	
	S918	QSW0499-001Z	PUSH SW I.M	
	S920	QSW0499-001Z	PUSH SW I.M	
	S921	QSW0499-001Z	PUSH SW I.M	
	S922	QSW0499-001Z	PUSH SW I.M	
	S924	QSW0499-001Z	PUSH SW I.M	
	S926	QSW0499-001Z	PUSH SW I.M	
	S930	QSW0546-001	SLIDE SWITCH	
	S931	QSW0499-001Z	PUSH SW I.M	
	S932	QSW0499-001Z	PUSH SW I.M	

■Electrical Parts List(MAIN CB)

⚠	Item	Parts Number	Description	Area
	S933	QSW0499-001Z	PUSH SW I.M	
	S934	QSW0499-001Z	PUSH SW I.M	
	S935	QSW0499-001Z	PUSH SW I.M	
	S936	QSW0499-001Z	PUSH SW I.M	
	S937	QSW0497-001	SLIDE SWITCH	
	S940	QSW0499-001Z	PUSH SW I.M	
	S941	QSW0499-001Z	PUSH SW I.M	
	X201	QAX0246-001Z	RESONATOR	
	BK001	E409182-001SM	EARTH TERMINAL	
	CN101	QGD2501C1-05Z	SOCKET	
	CN201	QGF1205C1-31	FFC SOCKET	
	CN202	QGF1205C1-21	CONNECTOR	
	CN203	QGA2001C1-06	6P PLUG ASSY	
	CN211	QGF1205C1-28	CONNECTOR	
	CN221	QGB2510J1-12	CONNECTOR	
	CN223	QGB2510J1-10	CONNECTOR	
	CN501	QGF1016C1-15	FFC CONNECTOR	
	CN502	EWS26C-A210J	SOCKET WIRE ASSY	
	CN503	EWS266-A225J	SOCKET WIRE ASSY	
	CN901	QGF1210G1-31	FFC CONNECTOR	
	CN951	QGF1205F1-21	CONNECTOR	
	CN961	EWS266-A413	SOCKET WIRE ASSY	
	CP112	ICP-N15-T	I.C. PROTECTOR	
	DI901	ELU0001-212	FLUORESCENT DISPLAY TUBE	
	EP921	E406523-001SM	EARTH BRACKET	
	FH901	E308192-001	FL HOLDER	
	FS901	E306805-014	FELT SPACER	
	FW213	EWR34D-16LS	FLAT WIRE	
	FW921	EWR36D-13LS	CORD	
	FW922	EWR37D-13LS	CORD	
	FW951	EWR33D-08SS	FLAT WIRE	
	HS001	E70306-001	HEAT SINK	
	JT921	QGD2501C1-03Z	SOCKET	
	JT922	QGD2501C1-03Z	SOCKET	
	JT923	QGD2501C1-04Z	SOCKET	
	JT924	QGD2501C1-03Z	SOCKET	

■Electrical Parts List(AV I/O CB)

⚠	Item	Parts Number	Description	Area
		I.C.S		
	IC 301	TC9409BF-000	I.C(M)	
	IC 501	MN35503	I.C(DIGI-MOS)	
	IC 502	NJM4580DD	I.C(MONO-ANALOG)	
	IC 503	NJM4580DD	I.C(MONO-ANALOG)	
		DIODES		
	D 571	MTZJ6.8C-T2	ZENER	
		TRANSISTORS		
	Q 551	2SD1302/ST/-T	SILICON	
	Q 552	2SD1302/ST/-T	SILICON	
		CAPACITORS		
	C 001	QCZ9050-103	CERAMIC	
	C 302	QETBOJM-227	E.CAP.	
	C 303	QETC1AM-107ZN	E.CAP.	
	C 304	QFN31HJ-103Z	MYLAR CAP.	
	C 306	QETB1HM-475E	E.CAP.	
	C 307	QFN81HJ-222	METAL.MYLAR CAP.	
	C 308	QDGB1HK-681Y	C CAP.	
	C 309	QFN31HJ-103Z	MYLAR CAP.	
	C 310	QETC1AM-107ZN	E.CAP.	
	C 311	QFN31HJ-103Z	MYLAR CAP.	
	C 316	QCZ0205-155	C.CAP.	
	C 317	QETBOJM-227	E.CAP.	
	C 318	QDVB1EZ-223Y	C CAP I M	
	C 319	QFN31HJ-103Z	MYLAR CAP.	
	C 321	QDVB1EZ-223Y	C CAP I M	
	C 323	QCZ0205-155	C.CAP.	
	C 324	QDVB1EZ-223Y	C CAP I M	
	C 355	QETC1AM-107ZN	E.CAP.	
	C 360	QCGB1HK-102	CER.CAP.-S	
	C 501	QCZ0205-155	C.CAP.	
	C 502	QETBOJM-227	E.CAP.	
	C 503	QETB1HM-475E	E.CAP.	
	C 505	QFN31HJ-104Z	MYLAR CAP.	
	C 506	QETBOJM-477	AL E.CAP.	
	C 507	QFN31HJ-104Z	MYLAR CAP.	
	C 508	QDCB1HJ-180Y	C.CAP.	
	C 509	QDCB1HJ-180Y	C.CAP.	
	C 510	QETC1AM-476ZM	E.CAP.	
	C 511	QFN31HJ-104Z	MYLAR CAP.	
	C 512	QDVB1EZ-223Y	C CAP I M	
	C 521	QFN31HJ-392Z	MYLAR CAP.	
	C 522	QFN31HJ-392Z	MYLAR CAP.	
	C 523	QFN31HJ-333Z	MYLAR CAP.	
	C 524	QFN31HJ-333Z	MYLAR CAP.	
	C 525	QCBB1HK-181Y	CER.CAP. (S)	
	C 526	QCBB1HK-181Y	CER.CAP. (S)	
	C 527	QETB1EM-107	AL E.CAP.	
	C 528	QETB1EM-107	AL E.CAP.	
	C 531	QCBB1HK-221Y	CER.CAP. (S)	
	C 532	QCBB1HK-221Y	CER.CAP. (S)	
	C 533	QETB1EM-107	AL E.CAP.	
	C 534	QETB1EM-107	AL E.CAP.	
	C 537	QTE1H28-476Z	E.CAPA. I.M	
	C 538	QTE1H28-476Z	E.CAPA. I.M	
	C 539	QFN31HJ-152Z	MYLAR CAP.	
	C 540	QFN31HJ-152Z	MYLAR CAP.	
	C 571	QETCOJM-477ZM	E.CAP.	
	C 574	QCS21HJ-680A	CER.CAP.-S	
	C 575	QDYB1CM-103Y	C CAP.	
		RESISTORS		
	R 234	QRE141J-183Y	18K 1/4W R.NETWORK	
	R 303	QRE141J-103Y	10K 1/4W R.NETWORK	
	R 304	QRE141J-103Y	10K 1/4W R.NETWORK	
	R 305	QRE141J-103Y	10K 1/4W R.NETWORK	
	R 311	QRE141J-102Y	1K 1/4W R.NETWORK	
	R 321	QRE141J-102Y	1K 1/4W R.NETWORK	
	R 322	QRE141J-102Y	1K 1/4W R.NETWORK	
	R 323	QRE141J-102Y	1K 1/4W R.NETWORK	
	R 328	QRE141J-101Y	100 1/4W R.NETWORK	
	R 452	QRE141J-102Y	1K 1/4W R.NETWORK	
	R 453	QRE141J-102Y	1K 1/4W R.NETWORK	
	R 454	QRE141J-102Y	1K 1/4W R.NETWORK	
	R 503	QRE141J-243Y	24K 1/4W R.NETWORK	
	R 504	QRE141J-163Y	16K 1/4W R.NETWORK	

⚠	Item	Parts Number	Description	Area
	R 505	QRE141J-163Y	16K 1/4W R.NETWORK	
	R 506	QRE141J-243Y	24K 1/4W R.NETWORK	
	R 508	QRE141J-101Y	100 1/4W R.NETWORK	
	R 509	QRE141J-243Y	24K 1/4W R.NETWORK	
	R 510	QRE141J-163Y	16K 1/4W R.NETWORK	
	R 511	QRE141J-243Y	24K 1/4W R.NETWORK	
	R 512	QRE141J-163Y	16K 1/4W R.NETWORK	
	R 513	QRE141J-181Y	180 1/4W R.NETWORK	
	R 515	QRE141J-102Y	1K 1/4W R.NETWORK	
	R 521	QRE141J-682Y	6.8K 1/4W R.NETWORK	
	R 522	QRE141J-682Y	6.8K 1/4W R.NETWORK	
	R 525	QRE141J-362Y	3.6K 1/4W R.NETWORK	
	R 526	QRE141J-362Y	3.6K 1/4W R.NETWORK	
	R 527	QRE141J-162Y	1.6K 1/4W R.NETWORK	
	R 528	QRE141J-162Y	1.6K 1/4W R.NETWORK	
	R 529	QRE141J-183Y	18K 1/4W R.NETWORK	
	R 530	QRE141J-183Y	18K 1/4W R.NETWORK	
	R 531	QRE141J-123Y	12K 1/4W R.NETWORK	
	R 532	QRE141J-123Y	12K 1/4W R.NETWORK	
	R 533	QRE141J-243Y	24K 1/4W R.NETWORK	
	R 534	QRE141J-243Y	24K 1/4W R.NETWORK	
	R 535	QRE141J-271Y	270 1/4W R.NETWORK	
	R 537	QRE141J-271Y	270 1/4W R.NETWORK	
	R 543	QRE141J-243Y	24K 1/4W R.NETWORK	
	R 544	QRE141J-243Y	24K 1/4W R.NETWORK	
	R 545	QRE141J-273Y	27K 1/4W R.NETWORK	
	R 546	QRE141J-273Y	27K 1/4W R.NETWORK	
	R 547	QRE141J-471Y	470 1/4W R.NETWORK	
	R 548	QRE141J-471Y	470 1/4W R.NETWORK	
	R 551	QRE141J-101Y	100 1/4W R.NETWORK	
	R 552	QRE141J-101Y	100 1/4W R.NETWORK	
	R 553	QRE141J-271Y	270 1/4W R.NETWORK	
	R 555	QRE141J-271Y	270 1/4W R.NETWORK	
	R 561	QRE141J-223Y	22K 1/4W R.NETWORK	
	R 562	QRE141J-223Y	22K 1/4W R.NETWORK	
	R 571	QRE141J-104Y	100K 1/4W R.NETWORK	
	R 573	QRE141J-564Y	560K 1/4W R.NETWORK	
	R 574	QRE141J-684Y	680K 1/4W R.NETWORK	
	R 701	QRE141J-561Y	560 1/4W R.NETWORK	
	R 702	QRE141J-561Y	560 1/4W R.NETWORK	
		OTHERS		
		EMW10752-002	PRINTED BOARD	
	B LU	QWE886-08RR	VINYL WIRE	
	J 701	QNN0061-001	PIN JACK	
	J 702	QNN0095-001	PIN JACK	
	K 501	QQR0601-001Z	F.BEADS	
	K 502	QQR0601-001Z	F.BEADS	
	K 503	QQR0601-001Z	F.BEADS	
	K 504	QQR0601-001Z	F.BEADS	
	K 505	QQR0601-001Z	F.BEADS	
	O RG	QWE883-09RR	VINYL WIRE	
	P 101	QNC0006-001	AC SOCKET	
	S 151	QSW0513-001	SLIDE SWITCH	
	X 501	QAX0006-001Z	RESONATOR	
	Y LW	QWE884-09RR	VINYL WIRE	
	CN 222	QGB2510K2-12	CONNECTOR	
	CN 224	QGB2510K2-10	CONNECTOR	
	FW 101	EWR35D-20LS	FLAT WIRE	
		DIODES		
	D 401	1SS119-02-T2	SILICON	
	D 402	1SS119-02-T2	SILICON	
	D 403	1SS119-02-T2	SILICON	
	D 404	1SS119-02-T2	SILICON	
		TRANSISTORS		
	Q 401	DTC114ES	DIGITAL TRANSISTOR	
		CAPACITORS		
	C 401	QETB1HM-105	AL E.CAP.	
		RESISTORS		
	RA 401	QRB045J-472	4.7K 1/8W NETWORK RES.	
		OTHERS		
		EMW10764-001	PRINTED BOARD	
	CN 401	QGA2503F1-05	5P PLUG ASSY	
	PW 001	QWE350-08BR	WIRE	

■Electrical Parts List(SERVO CB)

⚠	Item	Parts Number	Description	Area
		I.C.S		
	IC601	AN8806SB	I.C(MONO-ANALOG)	
	IC602	BA6897FP-W	I.C.	
	IC603	MN662720RB	I.C(DIGI-MOS)	
	IC604	TA8409F	I.C(MONO-ANALOG)	
		DIODES		
	D601	MTZJ4.7B-T2	ZENER	
		TRANSISTORS		
	Q601	2SA950/OY/-T	SILICON	
		CAPACITORS		
	C601	QCZ0205-155	1.5MF 25V C.CAP.	
	C602	QCZ0205-155	1.5MF 25V C.CAP.	
	C603	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C604	QETC1AM-107ZN	100MF 10V E.CAP.	
	C605	QETB1HM-106	10MF 50V E.CAP.	
	C606	QCGB1HK-102	1000PF 50V CER.CAP.	
	C607	QCGB1HK-102	1000PF 50V CER.CAP.	
	C608	QETB1HM-105	1MF 50V AL E.CAP.	
	C609	QCBB1HK-101Y	100PF 50V CER.CAP.	
	C610	QFVJ1HJ-273Z	0.027MF 50V T.FILM	
	C611	QDXB1CM-472Y	4700PF 16V C.CAP.	
	C612	QFN31HJ-103Z	0.01MF 50V MYLAR CAP.	
	C613	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C614	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C615	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C616	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C617	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C618	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C619	QCBB1HK-271Y	270PF 50V CER.CAP.	
	C620	QCSB1HJ-470	47PF 50V CER.CAP.	
	C621	QCGB1HK-102	1000PF 50V CER.CAP.	
	C622	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C623	QFZ0183-104Z	0.1MF M.MYLAR	
	C624	QCBB1HK-331Y	330PF 50V CER.CAP.	
	C625	QETC1AM-107ZN	100MF 10V E.CAP.	
	C626	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C631	QER51AM-227	220MF 10V AL E.CAP.	
	C632	QER61AM-107Z	100MF 10V AL E.CAP.	
	C641	QFN31HJ-103Z	0.01MF 50V MYLAR CAP.	
	C642	QFN31HJ-103Z	0.01MF 50V MYLAR CAP.	
	C653	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C656	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C661	QCBB1HK-471Y	470PF 50V CER.CAP.	
	C662	QCZ0202-155	1.5MF 25V CER.RES.	
	C663	QFZ0181-223Z	0.022MF M.MYLAR	
	C664	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C665	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C670	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
	C671	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C673	QER51AM-227	220MF 10V AL E.CAP.	
	C674	QDVB1EZ-223Y	0.022MF 25V C CAP I M	
	C678	QFVJ1HJ-104Z	0.1MF 50V T.FILM	
		RESISTORS		
	R601	QRE141J-123Y	12K 1/4W R.NETWORK	
	R602	QRE141J-102Y	1K 1/4W R.NETWORK	
	R603	QRE141J-560Y	56 1/4W R.NETWORK	
	R604	QRE141J-2R2Y	2.2 1/4W R.NETWORK	
	R605	QRE141J-274Y	270K 1/4W R.NETWORK	
	R606	QRE141J-154Y	150K 1/4W R.NETWORK	
	R607	QRE141J-273Y	27K 1/4W R.NETWORK	
	R609	QRE141J-114Y	110K 1/4W R.NETWORK	
	R610	QRE141J-104Y	100K 1/4W R.NETWORK	
	R612	QRE141J-822Y	8.2K 1/4W R.NETWORK	
	R613	QRE141J-121Y	120 1/4W R.NETWORK	
	R614	QRE141J-100Y	10 1/4W R.NETWORK	
	R615	QRE141J-120Y	12 1/4W R.NETWORK	
	R616	QRE141J-910Y	91 1/4W R.NETWORK	
	R617	QRE141J-125Y	1.2M 1/4W R.NETWORK	
	R618	QRE141J-473Y	47K 1/4W R.NETWORK	

⚠	Item	Parts Number	Description	Area
	R641	QRE141J-683Y	68K 1/4W R.NETWORK	
	R642	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R643	QRE141J-222Y	2.2K 1/4W R.NETWORK	
	R644	QRE141J-223Y	22K 1/4W R.NETWORK	
	R645	QRE141J-223Y	22K 1/4W R.NETWORK	
	R646	QRE141J-822Y	8.2K 1/4W R.NETWORK	
	R647	QRE141J-472Y	4.7K 1/4W R.NETWORK	
	R648	QRE141J-182Y	1.8K 1/4W R.NETWORK	
	R651	QRE141J-102Y	1K 1/4W R.NETWORK	
	R652	QRE141J-102Y	1K 1/4W R.NETWORK	
	R653	QRE141J-102Y	1K 1/4W R.NETWORK	
	R654	QRE141J-102Y	1K 1/4W R.NETWORK	
	R655	QRE141J-102Y	1K 1/4W R.NETWORK	
	R656	QRE141J-102Y	1K 1/4W R.NETWORK	
	R661	QRE141J-683Y	68K 1/4W R.NETWORK	
	R662	QRE141J-155Y	1.5M 1/4W R.NETWORK	
	R663	QRE141J-124Y	120K 1/4W R.NETWORK	
	R664	QRE141J-471Y	470 1/4W R.NETWORK	
	R670	QRE141J-471Y	470 1/4W R.NETWORK	
	R671	QRE141J-101Y	100 1/4W R.NETWORK	
	R672	QRE141J-102Y	1K 1/4W R.NETWORK	
	R673	QRE141J-102Y	1K 1/4W R.NETWORK	
	R674	QRE141J-102Y	1K 1/4W R.NETWORK	
	R692	QRE141J-101Y	100 1/4W R.NETWORK	
	R693	QRE141J-101Y	100 1/4W R.NETWORK	
	R694	QRE141J-101Y	100 1/4W R.NETWORK	
		OTHERS		
		EMW10742-002	PRINTED BOARD	
		E3400-431	FELT SPACER	
	CN601	QGF1023F1-15	15PIN CONNECTOR	
	CN602	QGA2001C1-06	6P PLUG ASSY	
	CN603	QGD2501C1-04Z	SOCKET	
	CN605	QGA2001C1-05	5P PLUG ASSY	
	CN607	QGF1205C1-28	CONNECTOR	

■Electrical Parts List (VCD CB)

⚠	Item	Parts Number	Description	Area
		I.C.S		
	IC 101	CL480-F1	I.C(MICRO-COMPUTER)	
	IC 102	LH531HEG-X	I.C(M)	
	IC 103	HM514260CJ-7-X	I.C	
	IC 104	BU1424K	I.C(M)	
	IC 105	BU2173F-X	I.C(DIGI-MOS)	
	IC 106	UPD6461GS-635-X	I.C.	
	IC 107	PQ20VZ11-X	I.C.	
	IC 108	TC7SH04FU-X	I.C.	
	IC 111	MN171601AK8J2	I.C(MICRO-COMPUTER)	
	IC 112	TC55257DFL85L-X	I.C.	
	IC 113	HD74HCT244FP-XE	I.C(M)	
	IC 114	HD74HCT245FP-XE	I.C(M)	
		DIODES		
	D 141	UDZ4.7B-X	ZENER DIODE	
	D 142	1SS355-X	SI.DIODE	
		TRANSISTORS		
	Q 101	DTA114EKA-X	DIGITAL TRANSISTOR	
	Q 141	2SC2412K/RS/-X	SI.TRANSISTOR	
		CAPACITORS		
	C 101	NCF31EZ-104X	C CAP.	
	C 102	NCF31EZ-104X	C CAP.	
	C 103	NCF31EZ-104X	C CAP.	
	C 105	NCF31EZ-104X	C CAP.	
	C 106	NCF31EZ-104X	C CAP.	
	C 107	NCF31EZ-104X	C CAP.	
	C 110	NCF31EZ-104X	C CAP.	
	C 112	NCF31EZ-104X	C CAP.	
	C 113	NCF31EZ-104X	C CAP.	
	C 115	NCF31EZ-104X	C CAP.	
	C 116	NCF31EZ-104X	C CAP.	
	C 122	NCS31HJ-150X	C CAP.	
	C 124	NCF31EZ-104X	C CAP.	
	C 125	NCF31EZ-104X	C CAP.	
	C 126	NEA20JM-226NZ	AL E.CAP.	
	C 127	NCF31EZ-104X	C CAP.	
	C 128	NEA20GM-476NZ	AL E.CAP.	
	C 131	NCF31EZ-104X	C CAP.	
	C 133	NCF31EZ-104X	C CAP.	
	C 134	NCF31EZ-104X	C CAP.	
	C 135	NCF31EZ-104X	C CAP.	
	C 136	NCB31HK-272X	C CAP.	
	C 141	NCB31HK-472X	C.CAP.	
	C 143	NCB31HK-182X	C.CAP.	
	C 144	NCB31HK-182X	C.CAP.	
	C 151	NCF31EZ-104X	C CAP.	
	C 152	NEA20JM-226NZ	AL E.CAP.	
	C 154	NEA20JM-226NZ	AL E.CAP.	
	C 156	NEA20JM-226NZ	AL E.CAP.	
	C 157	NEA20JM-226NZ	AL E.CAP.	
	C 159	NCB31HK-102X	C.CAP.	
	C 168	NCS31HJ-471X	C CAP.	
	C 170	NCS31HJ-471X	C CAP.	
	C 181	NCF31EZ-104X	C CAP.	
	TC 101	NAT3111-200X	TRIM.CAP.	
		RESISTORS		
	R 102	NRSA63J-473X	RES. C.M	
	R 103	NRSA63J-103X	RES. C.M	
	R 104	NRSA63J-105X	MG RES.	
	R 107	NRSA63J-112X	MG RES.	
	R 109	NRSA63J-750X	RES.	
	R 111	NRSA63J-182X	RES. C.M	
	R 112	NRSA63J-112X	MG RES.	
	R 113	NRSA63J-102X	RES. C.M	
	R 115	NRSA63J-0R0X	MG RES.	
	R 121	NRSA63J-102X	RES. C.M	
	R 122	NRSA63J-102X	RES. C.M	
	R 123	NRSA63J-102X	RES. C.M	
	R 124	NRSA63J-102X	RES. C.M	

⚠	Item	Parts Number	Description	Area
	R 125	NRSA63J-102X	RES. C.M	
	R 135	NRSA63J-121X	MG RES.	
	R 141	NRSA63J-750X	RES.	
	R 142	NRSA63J-562X	RES.1.M	
	R 147	NRSA63J-471X	RES. C.M	
	R 148	NRSA63J-152X	MG RES.	
	R 149	NRSA63J-152X	MG RES.	
	R 150	NRSA63J-0R0X	MG RES.	
	R 155	NRSA63J-271X	RES. C.M	
	R 156	NRSA63J-121X	MG RES.	
	R 157	NRSA63J-0R0X	MG RES.	
	R 191	NRSA63J-820X	RES. C.M	
	R 192	NRSA63J-820X	RES. C.M	
	R 193	NRSA63J-820X	RES. C.M	
	R 194	NRSA63J-750X	RES.	
		OTHERS		
		EMW10727-002	PRINTED BOARD	
		EWE390-04BB	WIRE	
	K 101	NQR0227-004X	F.BEADS	
	K 103	NQR0227-004X	F.BEADS	
	L 102	NQL012K-2R7X	INDUCTOR	
	X 101	NAX0150-001X	CRYSTAL	
	CN 101	EMV7171-015RE	CONNECT TERMINAL	
	CN 102	QGA2001F2-12X	CONNECTOR	
	CN 103	QGA2001F2-06X	CONNECTOR	

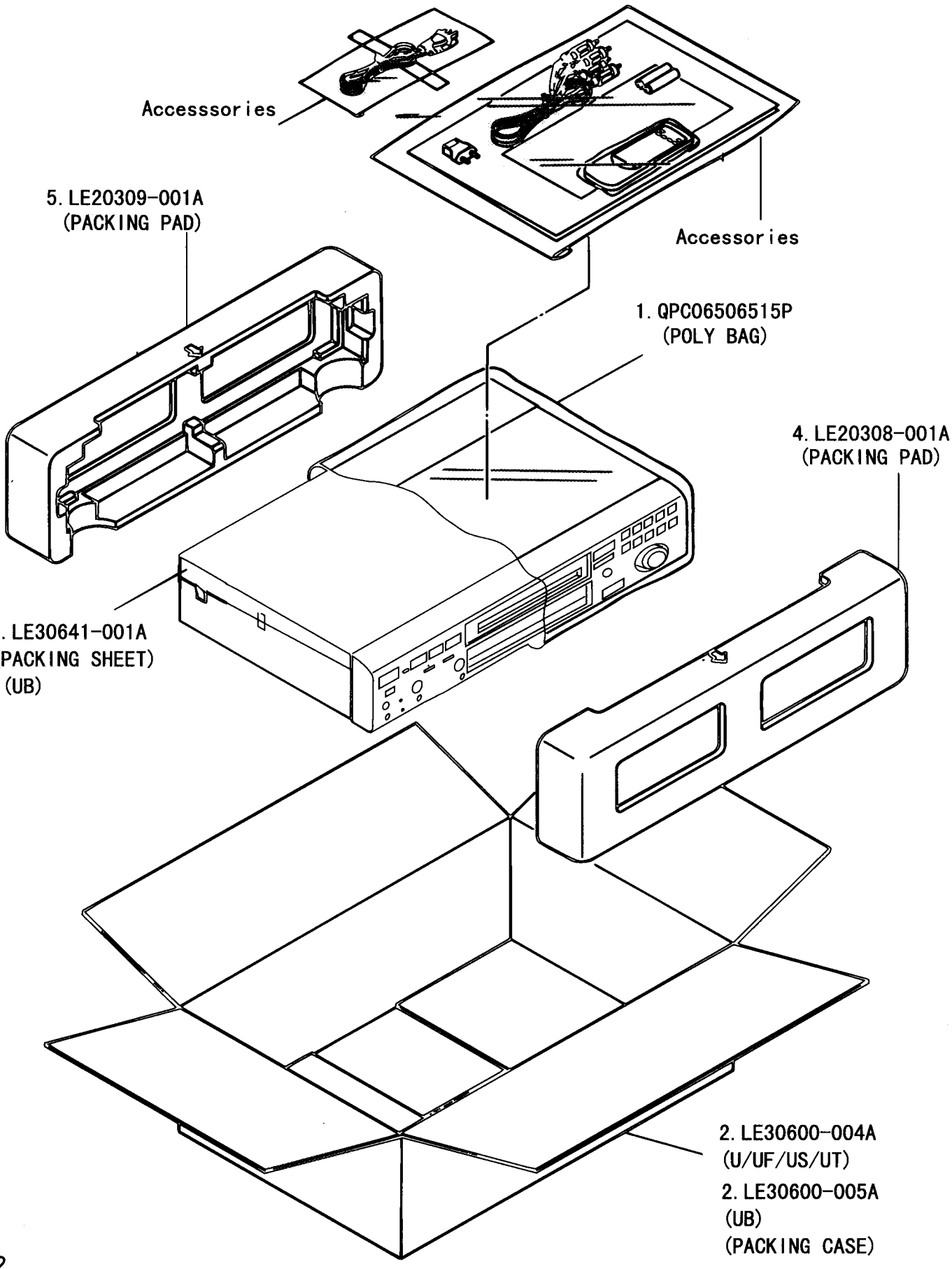
■Accessories List

Block No. M3MM

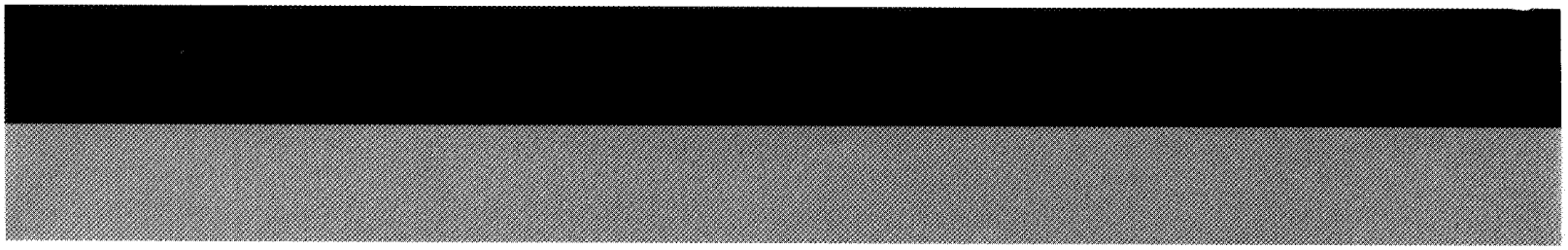
⚠	Item	Parts Number	Parts Name	Q'ty	Description	Area
	1	LET0088-001A	INSTRUCTION BOOK	1		
	2	QMPS020-183-JC	POWER CORD	1		UF
		QMP39F0-183E	POWER CORD	1		US
⚠	2	QMP5520-1835BS	POWER CORD	1		UB
		QMP7530-183	POWER CORD	1		U.UT
	3	QPC02503510P	POLY BAG	1		U
	4	QAM0027-001	SIEMENS PLUG	1		U.UT
	5	ENZ2202-001	SIEMENS PLUG	1		US
	7	PEAC0359-120	SIGNAL CORD	1		
	8	RM-SXSV22U	REMOCON UNIT	1		
	9	R6SPTT-2STSM	BATTERY	2		
	10	QPC02503510P	POLY BAG	1		

Packing Materials And Part Numbers

Block No. M4MM



XL-SV22BK
XL-SV33GD



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